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THE RELATION OF HOME ECONOMICS TO THE REST OF THE RURAL HIGH SCHOOL PROGRAM[1]

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A brief review of some data indicating the extent to which the rural high school constitutes an element in our school system may not be out of place. Dr. Inglis reports for the state of Indiana that nearly three-fifths of the high schools enroll each not more than 75 pupils and nearly three-fourths enroll each not more than 100 pupils. Dr. Ferriss in the Survey of Rural Schools of New York State reports that, "In October, 1920, there were 609 rural high schools in the state, approximately two-thirds of them fully accredited four-year schools, and one-third offering less than four years of accredited work. Over 70 per cent of these schools were situated in places of 1000 or less population, 84 per cent had an enrollment of less than 100 pupils, and over one-half had an enrollment of less than 50." As the rural high schools constitute more than two-thirds of the high schools of the state it is evident that in the matter of number at least they present an important problem.

The terms rural high school and small high school may be used as practically synonymous as the conditions of farm life make it necessary for most country children who attend high school to go to the school located in the small center or in the open country. This school is not only an important problem from the numerical viewpoint but the very fact that it is small raises a number of difficult questions that do not arise or, if they do, are insignificant in the urban high school, because the number of pupils involved in the latter organization makes their solution relatively simple. The importance of the small high school has been greatly increased by the growth in secondary school enrollment during the past twenty years. In the last fifty years there has been a marked increase in the amount of schooling that the average individual receives. The level that has now been reached makes it a matter of great importance that there be readily available for young people, living in rural communities, adequate secondary school facilities.

[1] Presented at the Home Economics Session of the National Education Association, Boston, July, 1922.

There is no exaggeration in stating that it constitutes an educational problem of fundamental importance to the country.

In preparing this discussion it was found to be impracticable from the standpoint of most effective consideration to limit it strictly to the program of studies. Administrative organization, principal, and teachers are vital factors in determining what occurs in class rooms and laboratories; hence the actual program, or the program of performance may be very different from that of printed announcements. In adjusting this discussion to these factors, changes were in the plan of treatment so that it might perhaps be more appropriately designated "The Relation of the High School to Home Economics Education."

In considering this topic the most surprising fact is that if we take the extent to which high school pupils are devoting time to the study of home economics as an index of the importance of the subject, we should hardly be warranted in spending an afternoon in the discussion of this subject. I take it, however, that those who outlined this program were looking to the future rather than having their vision limited by the present status of home economics in our system of secondary education. As a justification for this statement permit me to quote again from Dr. Ferriss' study of the rural high schools of New York State.

A study of 184 rural high schools chosen at random from the schools of each class, classification being made on the basis of number of pupils enrolled, showed that the pupils' time and energy were given in the following per cents computed on the basis of all pupils enrolled in each subject, taking into account the number of periods given each subject per week and estimating each pupil's program as being four subjects a day.

Percentage of pupil's time given to various subjects throughout the rural high school course

	per cent
English	23.67
Latin	13.01
French	6.74
Spanish	.89
Mathematics	17.68
Physical sciences (physics and chemistry)	2.91
Physical geography	.70
Biologic sciences (biology, botany, zoology, and physiology)	7.66
Foreign history	5.86
American history and civics	6.01
Economics	.06
Sociology	0.00
Study of occupations	0.00
Agriculture	1.30
Homemaking	1.67
Mechanical drawing, wood-turning, machine-shop	.48
Commercial subjects	5.99
Miscellaneous subjects	5.37

The above data indicate that over 44 per cent of the pupil's time and energy is given to the study of language, including English. or almost 21 per cent excluding English. In other words, over one-fifth of all the time the rural boy or girl spends in high school is devoted to the study of a foreign language. Almost 18 per cent of his time is given to mathematics, as compared with 11.27 per cent given to all the other sciences. In other words, he gives more time to the study of mathematics than he gives to the natural sciences and the social sciences including American history and civics, but excluding foreign history. He gives as much time to the study of foreign languages as he gives to natural sciences, agriculture, and the social sciences, excluding foreign history.

Computations based on data furnished by the report of the Commissioner of Education for 1917 show a somewhat similar condition for the country as a whole. According to this source the time of high school pupils was distributed among the subjects as follows: foreign languages, 17.54 per cent, most of which was devoted to Latin; English, 22.33 per cent; history and civics, 13.50 per cent, most of this was due to ancient history; biological sciences 5.80 per cent; physical sciences, 7.61 per cent; drawing and vocal music 11.29 per cent; and vocational subjects, 6.31 per cent. Included under vocational subjects were home economics, agriculture, trade and industrial work, and manual training. It is only fair to recognize that there probably has been an increase in the amount of time devoted to vocational subjects since 1917, although the data for New York State which were collected during the school year 1920–1921 do not show any considerable evidence to warrant such a conclusion. One is certainly conservative when he says that at present instruction in home economics does not have the time emphasis in the high school program that its importance warrants. There is no phase of the whole program of vocational instruction that can be so effectively organized in connection with the high school as can the work in home economics. Nor is there any other phase of vocational education which when properly organized and taught, is likely to function to such a great degree.

There are undoubtedly a variety of deficiencies that have contributed to this inadequate recognition of home economics in the program of secondary education, and some of them are of such character that they can be remedied rather easily. A fair percentage of those in administrative positions in the secondary school system have not had professional preparation of such character that a subject like home economics has any place in their educational philosophy. Too large a proportion of the principals of rural high schools do not realize that, as a result of the change which has taken place during the last generation in the character of the secondary school population, there is need for a recognition of

other than the college preparatory function on the part of the high schools. As a result of the influence of too narrow training on the part of secondary school administrators and the dominance of college entrance requirements secondary education is too largely controlled by tradition. The public is ready for a much more liberal interpretation of the function of secondary schools than has been attained generally in actual practice.

A part of this situation carries us directly back to the institutions that have the responsibility for the professional preparation of high school principals. Every one of these should make a place in its training of school administrators for a consideration of the problems of vocational education that are peculiar to the educational field for which they are preparing workers. This instruction should be of such character that it will not only make the prospective principal intelligently sympathetic with vocational education but it should equip him for meeting the specific problems that attend its introduction into the high school system. This means that there will need to be a "change of heart" or some change in personnel in teacher training institutions. We may as well face the situation frankly and acknowledge that in many institutions that are now furnishing principals and academic teachers for the secondary schools little interest and less sympathy is to be found for vocational education. It is hardly to be hoped that, as long as this situation continues, high school principals who come from them will be broad enough in their views to recognize the place of home economics in the high school program. One great need is high school principals who are big enough to be principals of schools that are big enough to take care of the vital needs of the constantly increasing number of young people that are taking the high school on faith. These young folk will not continue to do so always.

These statements should not be interpreted to mean that home economics or any other form of vocational education should run rampart in the high school system. The high school should continue to find an even larger opportunity for service in the college preparatory function. Some of the vocational enthusiasts who have found their way into the educational system have lost sight of this fact. Enthusiasm and narrowness of preparation have led them to talk and act as if the high school system should be remade at once, so as to meet the needs of their particular hobbies. The demands that they have made for their work often have gone beyond the bounds of reason and as a result they have frequently made for conditions that have interfered with the most

successful development of vocational instruction. This carries the problem back to the institutions in which they are being prepared. We must have teachers of home economics with a philosophy of education that will give them balance enough so that they can adjust themselves to a high school program that is adequate for the ends of all students.

As a result of home economics being incorporated into the high school program it has inherited certain traditions that go with that institution. Of these one that has stood in the way of the best development of the work is the idea of the four-year home economics curriculum. This situation exists in spite of the fact that most of the pupils remain in school not to exceed two years. Dr. Inglis in his Principles of Secondary Education says, "It is probably safe to say that of pupils entering the four-year high school from one-half to two-thirds reach the second grade, from one-third to one-half reach the third grade, and from one-quarter to one third reach the fourth grade. Of all pupils eliminated during the four year high school course it is probable that about one-half are eliminated during or at the close of the first year." Dr. Eaton in a study of vocational education in connection with the "Rural School Survey of New York State found in fifty rural schools that the students taking home economics were distributed as follows: Grade VIII, 8.24 per cent; grade IX, 31.55 per cent, grade X, 28.65 per cent; grade XI, 18.56 per cent; and grade XII, 11.60 per cent. Even when allowance is made for the fact that some of the departments had not been in operation long enough so that students had reached the junior and senior years of the course, it is evident that in the small school the per capita cost of maintaining the work in the third and fourth is excessive. This is true even when alternation of the work of the third and four years is practiced. From the economic standpoint it would be much better if most of the high schools organized their work so that it did not extend beyond the second year. In schools in which the enrollment would justify the continuance of the work beyond that period it would seem wise to have the first two years so that they would be fairly complete. The work of two years should contain those phases of home economics that are most vital and yet can be taught to girls at the state of development indicated. If this were done it would make it possible for those who leave school early to secure, before dropping out, the advantages of the work. It would encourage students who are primarily interested in other curricula to elect some work in home economics. When such elections were made it would be in a more profitable venture for the students than is likely to be the case under present conditions. At

present there are too few elections on other than the curriculum basis, if you can call it a curriculum, and when they are made they are altogether too frequently from any part of the course of study in home economics. This is largely due to the failure of administrators to look upon it as a sequential course and of teachers and supervisors to get it organized so that it does possess sequence.

A factor that has stood in the way of the development of home economics as a part of the high school program under the provision of the Federal Vocational Act is the absurd requirement of a half day to be devoted to the work. This is not only unnecessary but it is a positive detriment. It means a great waste of time and frequently results in students forming habits that are handicaps to them when they undertake to carry work out under home conditions. It appears to be the opinion of many of the most successful teachers of home economics that in schools that are organized on the basis of hour periods that a period of that length is ample. Undoubtedly the presence of daily periods from an hour and a half to three hours in length is a partial means of accounting for a weakness that is too commonly found in high school home economics, viz.: the relative over-emphasis in the school instruction of the manual phases of the subject to the neglect of technological aspects. Eaton found that of 882 girls who were taking home economics 96.6 per cent were regularly carrying responsibilities in connection with home work. Skillful teaching would call for a supplementing of this home experience on the side where it is most certain to be weak—the technological aspect. Instead it was found that of 55 lessons observed 80 per cent were purely laboratory exercises, 12.8 per cent combined class and laboratory exercises, and the remaining 7.2 per cent class exercises. More discouraging still is the fact that the laboratory work consisted largely in following directions. There was little evidence of the pupils participating in the planning of the work and such questions as were asked by the pupils related to the routine phases of the work. In the 55 exercises there were only twelve cases that were considered to involve reflective thinking. Evidently but few of the teachers really gave serious thought to putting the work on a truly educative basis. There was further evidence of failure on the part of teachers to recognize the importance of studying their work from the educational angle. Such answers as the following were given for holding all girls to certain exercises regardless of their skill in doing the work involved: "There is always room for improvement." "Every girl is made to practice the washing of dishes because every one can improve." "Every girl

is made to bake bread a certain number of times no matter what her skill." Such uniform and indiscriminate teaching of skills is decidedly worse than time thrown away.

Home economics will not attain the position it should occupy in the high school program until it is possible to provide the school system with administrators who are open-minded to its educational possibilities and teachers who can select a teaching content adapted to educational ends with girls of secondary school age. To say that this is the situation at present would be to deceive ourselves. To claim that it is impossible of accomplishment would be equally fallacious. But this result will not be attained except through a careful determination of aims for the subject, and a comprehensive and thorough preparation of teachers who will be able to teach in the light of these aims. Both of these are practically virgin fields at present.

THE VALUE OF VARIOUS REAGENTS FOR SETTING COLORS

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Many women are interested in the permanency of color in dyed cotton fabrics which are to be laundered frequently. Again and again home economics teachers, and others who are supposed to know, are asked: "What can I do to 'set' the color in this cotton material?" These questions are seemingly answered in books and magazine articles on the subject of laundering. An analysis of some of these recipes or directions shows great inconsistency or indefiniteness.[1]

We find reagents differing in chemical nature, such as salt, vinegar, sugar of lead, alum, turpentine, Epsom salt, saltpeter, Glauber salt,

[1] Balderston, L. Ray: Laundering, p. 103.
Balderston, L. Ray: Facing the Facts of Wash Day, *Good Housekeeping*, Nov. 1916, p. 120.
Chambers, Mary D.: A Guide to Laundry Work, p. 60.
Josselyn, Tudor C.: Sanitary Laundering, pp. 27, 69.
Mac Leod, Sarah J.: Housekeeper's Handbook of Cleaning, p. 199.
Shepperd, Juniata F.: Laundry Work, p. 37.
Vail, Mary Beals: Approved Methods of Home Laundering, p. 60.
Textile World Journal, January 15, 1921, p. 36.

borax, recommended for the same purpose. Occasionally a suggestion is made as to the color for which the reagent will be most effective. Temperature is mentioned in but one case, where the general statement is made that warm water is more effective than cold. The following is a summary of the various directions found for the use of these substances:

Salt—1 tbsp. to 4c. per gallon of water. Some say keep adding salt till the color stops bleeding. Colors affected: all colors, or black, brown, blue, pink, red, dark colors. Time: 10 min. to 3 days.

Vinegar—1 tbsp. to 2c. per gallon of water. Colors affected: all colors, or pink, red. blue. Time: over night to 2 or 3 days.

Sugar of lead—½ to 4 oz. per gallon of water. Colors affected: all colors, or lavender. Time: one hour to 2 or 3 days.

Borax—1 tbsp. to 4c. per gallon of water. Colors affected: all light colors, or may be used as fixative for any running colors.

Alum—1 tbsp. to 2 to 4 oz. per gallon of water. Color affected: green. Time: over night, or 2 or 3 days.

Turpentine—2 tbsp. per gallon of water, or diluted with from 4 to 6 times its volume of water. Colors affected: mauve, violet, heliotrope. Time: over night, or 2 or 3 days.

Epsom salt—4 tsp. per gallon of water, in washing and rinsing water.

Salt peter—1 oz. to 3 gallons of water.

Glauber salt—Recommended by a textile teacher.

From a study of the use of these various substances in the dye industry,[2] we find that common salt and Glauber salt serve only as assistants in the dyeing process. No more can be expected of them after dyeing has been completed. Some dyes (substantive dyes, chiefly) are soluble in water and less soluble in solutions of these salts; so benefit can be derived from their use only if they are put into every water through which the material passes.

In most cases sugar of lead, alum, borax, and acetic acid take an active part in the dyeing process. Where this is true, when the dyeing process has been completed, they have served their purpose. Acetic acid, with other chemicals, is used in after treatment of some substantive dyes to make them faster to light and washing. Alum is also so used. It is reasonable to suppose that in cases where such use of these substances would improve the quality of his product, the dyer would make use of them. If he has not done this, how is the woman who buys the material to know that the dye used is in one of these classes and might be so improved, and which treatment should be given to it?

A questionnaire was sent to a number of dye manufacturers, dyers, and chemists. Replies state that to know how to set a certain color in a certain cloth, knowledge of the classification of the dye used is

[2] The Application of Dye Stuffs to Textiles, by J. Merritt Matthews.

necessary, and that it is impossible for the purchaser to determine this; that the list of substances contains acids, bases, and neutral and mineral salts; that of the main classes of dyes used on cotton fabrics, i.e., substantive, sulphur, developed, and vat dyes, the only class that could be affected is the substantive class. These dyes are affected only because they are less soluble, i.e. 'run' less, in saline or acid solutions than in clear or distilled water. Epsom salt and alum might change the soluble sodium salt of the color base to a less soluble magnesium or aluminum salt. Even these effects would be destroyed by washing with ordinary soap. No permanent benefits are possible in any case.

EXPERIMENTAL PROCEDURE

A practical test of these nine reagents was made on moderately priced ginghams.

Four of the ginghams selected were 32″ wide and cost $.35 per yard; the other three were 26″ wide and cost $.29 per yard. The colors chosen represented the color circle: light blue, lavender, pink—checked with white, and four plaids whose dominant colors were red, brown (with considerable yellow), dark blue, and green. This method of choice was used merely to have the various classes of color represented, as some reagents are recommended for blues, some for pinks, and so on. It is quite possible that the blue may be a substantive color, the pink a vat color, and so may be expected to react differently.

Solutions of the reagents were made according to the following table.

TABLE 1

REAGENT	AMOUNT OF REAGENT PER QUART OF WATER	
	Weaker solution	Stronger solution
Salt	½ cup	1 cup
Vinegar	¼ cup	½ cup
Sugar of lead	1 tbsp.	2 tbsp.
Borax	⅛ cup	¼ cup
Alum	2 tbsp.	4 tbsp.
Turpentine	½ tbsp.	1 tbsp.
Epsom salt	½ tbsp.	1 tbsp.
Salt peter	¼ tsp.	½ tsp.
Glauber salt	¼ tbsp.	½ tbsp.

The materials were allowed to soak in the solutions for two hours. (A solution was prepared for each material.) Those reagents which dissolved readily at room temperature were used at that temperature—from 18°–20°C. In the others, the materials were entered at 40°–45°C. and allowed to cool.

Apparently the solubility of these dyes varied somewhat in these solutions, or they had not been rinsed with equal thoroughness after dyeing. The difference in strength of the solutions used seemed to make no difference in the amount of color discharged. Alum was most effective in preventing the dissolving of the dye; salt and Glauber salt ranked next; and turpentine was least effective. The samples were all dried, then dampened and ironed.

TABLE II

REAGENT	TEMPERATURE	OBSERVATION
	°C.	
Salt	20	A little color discharged from brown, green and red
Vinegar	20	Some color discharged from brown, green and red
Sugar of lead	20	Some color discharged from brown, green and red
Borax	45	Some color discharged from brown, green and red
Alum	20	A little color discharged from brown
Turpentine	45	Much color discharged from brown, green and red
Epsom salt	18	Some color discharged from brown, green and red
Salt peter	40–45	Some color discharged from brown, green and red
Glauber salt	45	A little color discharged from brown, green and red

Tests for fading in washing. Two complete sets of samples, including one which had not been treated, were subjected to washing and ironing five times. On one set, ivory soap was used; on the other, a white naphtha laundry soap. In every case the washing was done in thick suds, and the materials were rinsed three times. All water used with the ivory soap test was at 50°C. With the naphtha soap, the temperature of the water was kept at 40°C.

In every case there was color discharged in every water, though much less, in the rinse waters, than in the soapy waters. No difference was distinguishable in the effect of the two soaps on this point. The red always discharged the most color, then the green, brown, and dark blue. The light blue, pink, and lavender checks seemed to discharge the least color, though their wash waters were decidedly colored. In the fifth washing there was much less color discharged than in the first and second.

After ironing for the fifth time, the samples were mounted on cards in such a way as to facilitate comparison.

A third set of samples was mounted on cards to be exposed to sunlight. For the accomplishment of this part of the investigation, we are indebted to the Home Economics Department of the University of Arizona. Lillian Cummings, a student, assumed the responsibility of exposing the materials to the bright sunlight, and of keeping a record of such exposure. This was done in daily periods of from three to six and one-half hours. The total time of exposure amounted to seventy-two and one-half hours.

RESULTS

Several members of the home economics faculty of the University of Wisconsin were asked to pass judgment upon the results obtained.

Laundering. (1) with ivory soap, (2) with naptha soap. Question—Has treatment with reagents made the color more resistant to the laundry process? Make comparisons with untreated samples which have been subjected to the same laundry process. Rate efficiency of reagents: A—very efficient; B—efficient; C—slightly efficient; D—inefficient. Analysis of schedules:

(1) Six schedules voted all reagents inefficient in every case.

One schedule reported all the reagents efficient (B) on the light blue material.

One schedule reported salt slightly efficient (C) on the dark blue, borax slightly efficient (C) on brown and dark blue, alum slightly efficient (C) on light blue, Epsom salt slightly efficient on dark blue and light blue.

(2) Seven schedules reported all reagents inefficient (D) in every case. One schedule reported all reagents slightly efficient (C) on the light blue and green.

Sunlight test. Question—Has treatment with reagents made the color more resistant to sunlight? Make comparisons with untreated samples which have received the same exposure. Rate efficiency as for laundering.

Analysis of schedules: Six schedules voted all reagents inefficient in every case.

One schedule reported all reagents in the stronger solution slightly efficient (C) on light blue and green.

One schedule reported salt, vinegar, and sugar of lead efficient (B) in both solutions on the brown; borax in weak solution, slightly efficient (C) and in strong solution efficient (B) on brown, alum in both solutions slightly efficient on brown.

In all cases those who recorded any efficiency remarked that they could see but very little difference. The opinion of this group of people is practically unanimous in declaring that there was no practical value in using any of these reagents in this case.

The work done in this investigation is too limited to prove anything. However, it seems to bear out conclusions which one must draw from the study of the use of these substances in the dyeing industry, from opinions expressed in the letters received in response to a questionnaire sent to dyers, dye manufactures, and dye chemists, and from answers to a similar question published in the "Textile World Journal" for January 15, 1921. Apparently there is no home treatment which will have permanent effect upon the staying power of colors in cotton that is to be washed and to be worn in the sun. We should demand of the dyer the best that he can give us with the knowledge and materials available. There are occasions when an inferior product will serve our purpose, as in material which is to have a temporary use. Since the fastness of a color is something of which the consumer cannot possibly be a judge at the time material is purchased, there should be some arrangement made, in connection with pure fabric laws, possibly, by which the consumer may be so informed that she may be able to buy the *quality* of dye in material which she desires.

A PRACTICALLY PERFECT PIECE OF DISTRIBUTION

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The marketing of the cantaloupe crop of the Imperial Valley last spring furnishes a striking demonstration of what can be accomplished through foresight and coöperation in the way of working out the distribution, under severe difficulties, of a highly perishable crop.

Imperial Valley, situated in Southern California, is about 40 miles long and perhaps 20 miles across at its widest point. It is entirely surrounded by unimproved desert wastes. Cantaloupes are grown throughout the Valley but the center of the industry is at Brawley. Forty-three large distributors, many of them owning large acreages of their own, control the sale of the cantaloupe output of the valley.

American growers operate side by side with the Japanese and Mexican growers. The short and heavy shipping season requires the use of much transient labor of different races and of varying efficiency, which is brought into the valley for the season. The daily maximum temperature exceeds 100°F., so that quick handling of the melons from the field to the packing shed and into the iced cars is a necessity. The cantaloupe season usually comes on with a rush, and the heavy shipping season is usually attended by an almost feverish atmosphere of rush and anxiety. The acreage and production is constantly increasing, often in spite of the advice of the distributors. This year they faced the largest crop in the history of the Valley. There were 31,000 acres to be harvested, against 22,600 last year. Meanwhile the California cantaloupe, grown under irrigation and transported immense distances at high freight rates, is distinctly a semi-luxury and therefore must face an always somewhat limited demand. So much for some of the difficulties that these cantaloupe growers and dealers must always face.

Before the opening of the last season, the 43 chief distributors who operate in the Valley met with a representative of the Federal Bureau of Markets and drew up definite marketing plans. The consuming power of the large cities of the country was charted, based on the information gained through the conduct of the Federal market news service during the past five years. A definite plan for the distribution of a maximum of 300 cars per day, based upon this survey was drawn up and approved. It was expected at the time that shipments would

exceed 300 cars daily, at least during the peak ten days but the exact excess was not known.

All records of previous years were broken in several of the daily shipments. It was broken first on June 19 when 385 cars were loaded; again on the 23rd when 525 cars were started; and on the 26th of June 648 cars were loaded—ten trains—and just 300 cars more than the previous record, set in 1919, and 348 cars more than originally provided for in the scheme of distribution. Not only was this unprecedented peak reached but the daily movement was maintained at an average of more than 500 cars during the last ten days of June.

There was no definite coöperative organization as such, but the season was saved from disaster by real coöperation ably seconded by knowledge and facts. Each day, throughout the shipping period, all of the distributors met with the Federal market news service representative, in his office at Brawley, and each shipper gave his intended number of shipments for the day, with destinations. The totals of the intentions were compared with the consuming power of the cities, as charted, and with the shipments they had recently received. If it appeared that certain cities were being overstocked, the plans for shipments were so shifted that a more even distribution would be effected. Single cars were sent to smaller cities not previously slated to receive any, but shown on the records as capable of consuming an occasional carload. In fact, after shipments began to exceed the planned 300 cars a day, the large distributors made a regular practice of trying to put their surplus into new markets instead of assuming that the old markets would use more cars per day just because they were received, as was usually assumed in earlier years. When shipments were around 300 cars a day, cars were billed direct to 60 cities; at 400 cars, destinations numbered 70; at 500 cars, 85 cities received them; at 600 cars, 100; and on the peak day the 648 cars were billed to 115 different cities. Diversions of cars en route increased the total number of cities supplied.

The railroad did its part in this distribution demonstration. By previous arrangement, it had the proper number of cars waiting on the sidetracks each day and the proper equipment for icing was available. Railroad crews worked 24 hours a day to keep ahead of the loading. Here, again, all records were broken, for railroad men say that never before have so many cars been iced, started, and hauled in one day from a stretch of territory 40 miles long.

The cantaloupes this year were of unusually good flavor. The distributors believed that quality must be especially well guarded if

the demand was to be maintained in proportion to supply. Their own inspectors were instructed to use rigid discrimination and they gave their unqualified support to the county horticultural commissioner in policing the Valley against shipment of immature melons and in prosecuting the offenders. Toward the end of the season the fruit did not carry well, but for the season as a whole, the quality and condition on arrival at market was exceptionally good. This fact was recognized as a valuable ally in disposing of the great crop.

Thus, by means of carefully-made, concerted plans, based on now well-established facts, last year's crop of 11,950 cars, greater than any previous crop from the Imperial Valley by more than 1,000 cars, was disposed of at prices, at shipping point, ranging from $5.50 at the opening of the season in June to as low as 80 to 90 cents a crate during the first week of July, and cities everywhere, many of which had never received carloads before, had California cantaloupes. New York took more than 1750 carloads, Chicago more than 1000; many other cities received them in terms of hundreds of cars, and other markets ranged down the list to single cars. While many growers and distributors did not "break even," the season was not attended by the disasters witnessed in some previous years. Even under these conditions, it has been possible to work out, and to execute, what one market expert of wide experience has called "a practically perfect piece of distribution."

VEGETABLES FOR DIABETICS

With a view to suggesting to those on a restricted diet, particularly to diabetics, ways in which variety might be introduced into the menu, the United States Department of Agriculture has searched the world for promising vegetables, low in carbohydrate. Last year 91 species were planted, so that some vegetable was available every day of the year.

These varieties included anserine, asparagus, basella, bush and pole beans, cabbage, carrot, cauliflower, celeriac, celery, chard, chervil, chayote, collards, corn salad, cress, cucumber, dandelion, eggplant, endive, escarolle, finocchio, kale, kohlrabi, lettuce, mung bean, mustard, New Zealand spinach, okra, onion, leek and shallot, orach, pai-tsai, parsley, patience, pepper, purslane, radish, roquette, salsify, scorznera, sorrel, soy bean, spinach, squash, vegetable marrow, tomato, turnip, and witloof. Most of the uncommon vegetables in the foregoing list can be grown easily.

THE EFFECT OF COOKING ON THE VITAMIN CONTENT OF CABBAGE

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Preliminary: Practically all of the data bearing on the effect of cooking upon the vitamin content of cabbage is to be found in the publications of foreign investigators, notably those of E. M. Delf of England. It has been customary to infer from these results that identical effects would be produced by the cooking of American cabbage by our methods, but it has seemed desirable to substitute direct experimentation in lieu of these inferences. In the first place the character of the American cabbage differs markedly from its English cousin in lower content of chlorophyll. Secondly, the work of La Mer and Sherman has provided a basal diet and a technique for the quantitative study of the antiscorbutic vitamin that has distinct superiority over the methods in use prior to their contribution. Thirdly, there has appeared in America a new implement of cooking, the pressure cooker, which is able to decrease the time of cooking by utilizing a higher temperature for a shorter period of time.

For these and other reasons the present series of studies was inaugurated and has been in progress in our laboratories for the past year. The present paper deals mainly with the extent of destruction of vitamin C. A single experiment was conducted with a view to determining the destruction of vitamins A and B. The apparent conformity of our results with those of Delf and other workers in this field seemed to make it unnecessary to continue the A and B investigation further. The results in toto demonstrate that the cooking of cabbage by either the open kettle method or the pressure cooker process produces a destruction of vitamin C which is slightly less than 95 per cent of the total content. The results of Hess, Holt, and others indicate that an amount of orange or tomato juice which is five times the minimal protective dose for a guinea pig is adequate protection for the human infant. We have no direct data upon the adult but since protective action seems to require greater dosage when the animal is actively growing, the adult requirement is probably not greatly, if any, in excess of the infant, even though the mass of the individual is greater. Twenty grams of cooked cabbage per day is shown by our results to be a safe protective dosage

for the guinea pig. On the above basis it would follow that 100 grams per day or about $3\frac{1}{3}$ ounces would contain enough vitamin C after cooking to safely protect a human being from the scurvy. In other words while the destructive action of cooking upon the C vitamin is large it is not complete and a portion of the size noted is far from being an excessive portion for human consumption. We can still eat our cabbage cooked if we prefer it and retain its antiscorbutic properties if we will consume enough of it.

Vitamins A and B apparently suffer little if any destruction by the usual cooking processes. We demonstrated that when cooked cabbage constitutes 15 per cent of the diet of a white rat it supplied an adequate amount of both A and B. In this connection, however, it is important to note that the cooking process does extract from the cabbage considerable portions of these vitamins and if we are to get all that was in the raw cabbage we must add to the cooked solid the juice in which it was cooked.

Review of previous work: In order to compare the reported experimental results with those of other investigators we may briefly review the findings. Holst and Fröhlich[1] in 1907 reported that when 30 grams of cabbage daily was combined with wheat bread and fed to guinea pigs the animals failed to develop scurvy if the cabbage used had been cooked 30 minutes at 212°F. but that several of the animals succumbed from scurvy if the temperature was maintained at 230 degrees for the same period. When the cabbage was combined with oats instead of wheat bread it was possible to cook the cabbage an hour at 212 and still obtain nearly complete protection with 30 grams daily. Four pigs out of 5 were protected by this diet. On the other hand when the cabbage was steamed for 30 minutes at 230 degrees and 30 grams daily fed with oats the onset of the symptoms was delayed but the animals finally succumbed to scurvy. Thirty minutes at 248 degrees gave very little protection, the pigs rapidly developing symptoms on thirty grams per day of cabbage thus prepared.

In 1918, E. M. Delf reported an extensive series of experiments on the problem, which have justly constituted the most quoted authority on this subject to date. Our results are in substantial agreement with the work of this investigator. Delf reported several combinations but her results may be summarized in the following conclusions: 15 grams daily of cabbage cooked for two hours at 212°F. proved protective for five guinea pigs over a period of ninety days. Fifteen grams daily of cabbage cooked at 230 degrees for one hour permitted animals to live, but slight symptoms of scurvy were manifested after 85–112 days. Symptoms appeared after 90 days when the cabbage was cooked one hour at 248 degrees while two hours at 248 degrees resulted in symptoms after 18–26 days though the animals all lived to the end of the experiment (90 days). One hour at 266 degrees produced only slight increase in severity of symptoms and the animals lived until the end of the experiment (86 days).

From this series Delf considered 15 grams of cooked cabbage daily the minimal protective dose and since one gram of raw cabbage daily was protective this would represent 93 per cent destruction for cabbage cooked at 212 and slightly greater destruction at the higher temperature. In our experiments we found that 10 grams of cooked cabbage daily were non-protective while 20 grams daily were completely protective throughout the experimental period

[1] Holst and Frohlich, *J. Hyg.*, 1907, vii, 619, 634, and 661.

(70 days) when we used either 45–60 minute cooking period at 212 or twenty minutes in the pressure cooker at 248. In our experiments also one gram of raw cabbage was completely protective; hence our destruction was less than 95 per cent by our cooking processes. Since the ten gram dose failed to protect, our results show that the destruction is greater than 90 per cent and less than 95 per cent, a substantial agreement with the Delf results and with a diet that was more nearly perfect in other factors than was hers.

Campbell and Chick[2] made a study of the effect of cooking methods comparable to the canning processes. They blanched their cabbage for three minutes in dilute sodium bicarbonate solution, packed the cabbage in enameled cans filled with boiling water, then closed the cans and processed them in boiling water for one and a half hours. The temperature in the cans during this period was between 194 and 212 degrees for one hour. The drained cabbage was fed and had lost 70 per cent of its antiscorbutic value. Fifteen grams daily supplied sufficient C but not sufficient A for growth unless the liquor was fed. The latter was 39 per cent of the content of the can.

Delf[3] also reports that 1.5 cc. of raw cabbage juice daily is protective for guinea pigs, that 7.5–10 cc. daily of cabbage juice cooked for one hour at 212 was protective and that heating of the juice for one hour at 212 was no more destructive than 20 minutes at the same temperature (85 per cent destruction). Delf also found that when cabbage was cooked 15 minutes in a five per cent citric acid solution the destruction was greater than when boiled in water. She therefore finds increased acidity non-protective in the case of cabbage.

Daniels and McClurg[4] report no destruction of B when cabbage is boiled until tender and 250 grams combined with 100 grams of adequate dry ration (the cabbage was cooked 45 minutes in a solution containing sodium bicarbonate to 5 per cent strength). Whipple[5] reports no loss of vitamin B when cabbage is heated for 30 minutes to one hour at 212 degrees. Whipple also finds no loss when the cabbage is cooked for 30 minutes to one hour in 0.1 per cent bicarbonate solution at 212°F. or in a 5 per cent vinegar solution.

Hume[6] finds no loss of vitamin A when green cabbage was cooked one to two hours at 212°F., and Campbell and Chick[2] find a similar result from their processing method, but call attention to the removal of some of the A from the cabbage in the extracted juice. Their results indicate loss by extraction but not by destruction. Delf found no loss of A when cooking was one hour at 212°F. or one hour at 248°F. and only moderate loss when cooked two hours at 248°F. She found a moderate loss after cooking one hour at 266°F. and a distinct loss after two hours at 266°F. All of these experiments were conducted with guinea pigs as the experimental animal and 15 grams daily sufficed for vitamin A supply.

EXPERIMENTAL

Cooking methods: In order to standardize our cooking methods the Department of Cookery first experimented to determine the time required to secure a cooked cabbage of table quality by the open kettle method. Experiments were then extended to the pressure cooker until the time required to obtain the same quality cabbage was fixed. While there is obviously a certain variability in results owing to differences in cabbage quality, table I gives the essential data obtained.

[2] Campbell and Chick, *Lancet*, 1919, ii, 320.
[3] Delf, *Biochem. J.*, 1920, xiv, 211
[4] Daniels and McClurg, *J. Biol. Chem.*, 1919, xxxvii, 201.
[5] Whipple, *J. Biol. Chem.*, 1920, xliv, 175.
[6] Hume, *Biochem. J.*, 1921, xv, 30.

TABLE I

Cooking conditions

	PRESSURE COOKER	OPEN KETTLE
Time of cooking	20–23 minutes in all	45–90 minutes in all
Temperatures maintained	3–5 minutes at 212–248 13–15 minutes at 248 2 minutes at 248–212	45–90 minutes at 212F
Reaction of liquor drained from the cooked product	pH. 6–5.8 colorimetrically pH. 5.4 electrometrically	do. do.
Contact with atmospheric oxygen	In atmosphere of steam throughout the cooking period	Practically immersed in boiling water throughout the cooking period

In open kettle cooking a given weight of cut up cabbage was immersed in one cup of boiling water and the boiling continued with the kettle open for from 45 to 90 minutes according to the amount of cabbage used. In bringing the pressure cooker cabbage to the same condition one cup of water was first placed in the cooker and brought to boiling. The cut up cabbage was then added, the cover clamped on and the cooker placed on the stove. The valve was left open until dry steam issued from it. It was then closed and heating continued until a pressure of 10–15 lbs. was reached and the thermometer reading noted. In most of the experiments the pressure was 15 lbs. and the temperature 248°F. The heat was then regulated to maintain this pressure and temperature for 13–15 minutes. At the end of that time the cooker was removed from the flame and allowed to cool until the pressure reached 5 lbs. The valve was then opened, cover removed, and cabbage drained. The juice was not used in the feeding experiments on which the cabbage proper tests are based.

Animal procedure: The development of a standardized basal diet and a technique for handling guinea pigs was worked out by La Mer and Sherman[7] in 1921. The work of previous investigators is subject to criticism in that their basal diets may have affected the development of the animals adversely and hence to a degree the reliability of the conclusions. Delf's basal diet, for example, was admittedly inadequate in vitamin A. We therefore made use of the these results in our experiments and followed the La Mer-Sherman methodology rigorously.

[7] LaMer V., Ph.D., Dissertation, Columbia Univ., 1921.
Sherman, LaMer, and Campbell, *J. Am. Chem. Soc.*, Jan. 1922.

Basal diet: Skim milk powder (Krystallak), heated two hours at 224–230°F., 30 per cent; butter fat, 10 per cent; ground whole oats, 59 per cent; NaCl, 1 per cent. The cabbage was fed separately in small dishes and complete consumption of the daily allowance observed. In the process of cooking the cabbage loses a certain amount of water. We found considerable variation but in general 10 grams of pressure cooked cabbage is roughly equivalent to 10.7 grams of raw, and 10 grams of open kettle cabbage to 10.8 grams raw. Since this difference is both slight and variable but always represents a loss we adopted the practice of feeding a given weight of the cooked cabbage and assuming that it represented at least that multiple of the raw used in the controls. We have not attempted to include the factor in our calculation of per cent destruction but if it were included it would lower the destruction only a fraction of a per cent.

Young guinea pigs were selected and fed on the basal diet with raw cabbage ad lib. for a period of from two to three weeks before beginning the experimental or test diet. This procedure is essential to weed out those animals which are unsuitable for the experiment and only those were retained which showed appreciable weight gains in the preliminary period. The animals were also selected so as to be about 300–350 grams weight at the beginning of the experiment.

The criterion as to whether scurvy develops or not is invariably based on autopsy findings, the animals which survived the experimental period being chloroformed and subjected to autopsy as well as the animals which succumbed. In this connection we are indebted to Dr. Mueller of the Department of Pathology of the New York Hospital for valuable assistance. The decline of the weight curve and even death may occur with complete absence of true scurvy, making the autopsy imperative as the basis for C vitamin conclusions. We also found the X-ray a valuable indicator for observing the development of scorbutic rib beading.

In each group of experiments two control groups were run, one on the basal diet alone and one on a diet containing one gram of raw cabbage daily. These controls are necessary to make sure that the heating of the skim milk powder has been sufficient to destroy the C in that article of diet and to obtain a basis for calculating the per cent of destruction of the vitamin in the cooked cabbage.

In a single experiment white rats were used to determine the presence or absence of destructive effects upon the A and B vitamins. These animals were given a basal diet consisting of the following mixture:

casein, 90 grams; starch, 163 grams; sugar, 85 grams; lard, 125 grams; agar, 25 grams. To this was added 12 grams of Osborne-Mendel salt mixture. After the animals had begun to decline in weight on this basal diet, cabbage was added to form 15 per cent of the diet, analysis being made of the cabbage for protein, fat, and carbohydrate, and the basal diet reduced in these particulars to prevent decrease in nutrients and calories through the cabbage addition.

Experiment I. To determine the minimal protective dose of pressure cooked or open-kettle cooked cabbage necessary to protect a guinea pig from scurvy.

Eleven groups of animals were fed. The diets were as follows:

Group A. Basal diet alone
Group B. Basal diet plus 1 gram raw cabbage daily
Group C. Basal diet plus 5 grams of pressure cooked cabbage daily
Group D. Basal diet plus 10 grams pressure cooked cabbage daily
Group E. Basal diet plus 20 grams pressure cooked cabbage daily
Group F. Basal diet plus 40 grams pressure cooked cabbage daily
Group G. Basal diet plus pressure cooked cabbage ad lib
Group H. Basal diet plus 5 grams open kettle cooked cabbage daily
Group I. Basal diet plus 10 grams open kettle cooked cabbage daily
Group J. Basal diet plus 20 grams open kettle cooked cabbage daily
Group K. Basal diet plus open kettle cooked cabbage ad lib

The growth curves are shown on charts I and II, and the significant values are tabulated below.

Table of significant values to accompany chart I

Diet A. (No cabbage)						
Pig No.	P3	P8	R22	R14	S21	S22
Days on diet	32	28	28	23	32	32
Wt. at beg.	378	387	283	385	417	340
Wt. at end	220d	207d	297d	363d	305d	234d
Loss or gain	−158	−180	+14	−122	−112	−106
Diagnosis[1]	S	S	S	S	S	S

Diet B (1 gm. raw cabbage daily)						
Pig No.	R6	R12	R11	R13	S10	S15
Days on diet	82	82	70	70	100	98
Wt. at beg.	400	358	322	365	375	295
Wt. at end	300	498	476	472	385	517
Loss or gain	−100	+140	+154	+107	+ 5	+122
Diagnosis	N	N	N	N	N	N

Diet C (5 gms. pressure cooked)			Diet D (10 gms. pressure cooked)	
Pig No.	P4	P10	P1	P11
Days on diet	46	41	45	59
Wt. at beg.	364	376	362	396
Wt. at end	212d	272	252d	207d
Loss or gain	−152	−104	−110	−189
Diagnosis	S	S	S	S

Diet E (20 gms. pressure cooked cabbage)

Pig No.	R2	R3	S12	S13	S14	S17
Days on diet	13	70	98	100	100	100
Wt. at beg.	301	333	330	406	427	363
Wt. at end	240d	408	365	517	497	660
Loss or gain	− 61	+ 75	+ 35	+111	+ 70	+297
Diagnosis	N	N	N	N	N	N

Diet F (40 gms. pressure cooked)			Diet G (pressure cooked cabbage ad lib.)			
Pig No.	R17	R18	S5	S6	S8	S9
Days on diet	70	70	79	79	89	24
Wt. at beg.	342	387	414	385	365	378
Wt. at end	557	470	321d	325	510d	361d
Loss or gain	+215	+ 97	− 93	− 60	+145	− 17
Diagnosis	N	N	P	P	P	P

Diet H (5 gms. open kettle)		Diet I (10 gms. open kettle cabbage)		
Pig No.	P5	P7	P2	P9
Days on diet	44	48	52	48
Wt. at beg.	411	339	351	384
Wt. at end	235d	205d	200d	244d
Loss or gain	−176	−134	−151	−140
Diagnosis	S	S	S	S

Diet J (20 gms. open kettle cabbage)							Diet K (open kettle cabbage ad lib.)			
No. of pig	R4	R6	S1	S2	S3	S4	S18	S19	S20	S16
Days on diet	32	70	100	100	100	100	98	98	98	98
Wt. at beg.	355	341	395	404	382	427	395	357	430	336
Wt. at end	251d	275	594	490	355	695	785	620	680	507
Loss or gain	−104	− 26	+199	+ 86	− 27	+268	+390	+263	+250	+171
Diagnosis	(?)	N	N	N	N	N	N	N	N	N

[1] Under diagnosis, S indicates definite scurvy; N absence of scurvy symptoms; and (?) doubtful.

A study of the charted results shows clearly the inadequacy of 5 and 10 grams of cooked cabbage daily to prevent scurvy. The results with the basal diet alone indicate its excellence as a scurvy producing diet, the pairs of animals studied showing identical curves and death from acute scurvy on this diet in almost the identical number of days (32 average). The controls which were run on basal diet plus one gram of raw cabbage daily suggest a parallel with our experience with rats and infants. One gram raw cabbage daily was entirely adequate as protection against scurvy as shown by autopsy findings. However, as the animals increase in weight a point is reached where the weight curve begins to decline unless the cabbage is increased. We attribute this phenomenon as due to lack of sufficient vitamin for growth effects as the animals increase in mass. In two of our controls we were able to restore normal growth by increasing the cabbage to two grams raw daily (pigs R11 and R13). In the case of rats we have often observed that a B vitamin supply which was adequate for growth for a considerable number of days required increment as the animals increased in weight and in one of our hospital cases of marasmus we reached a level of growth rate on a

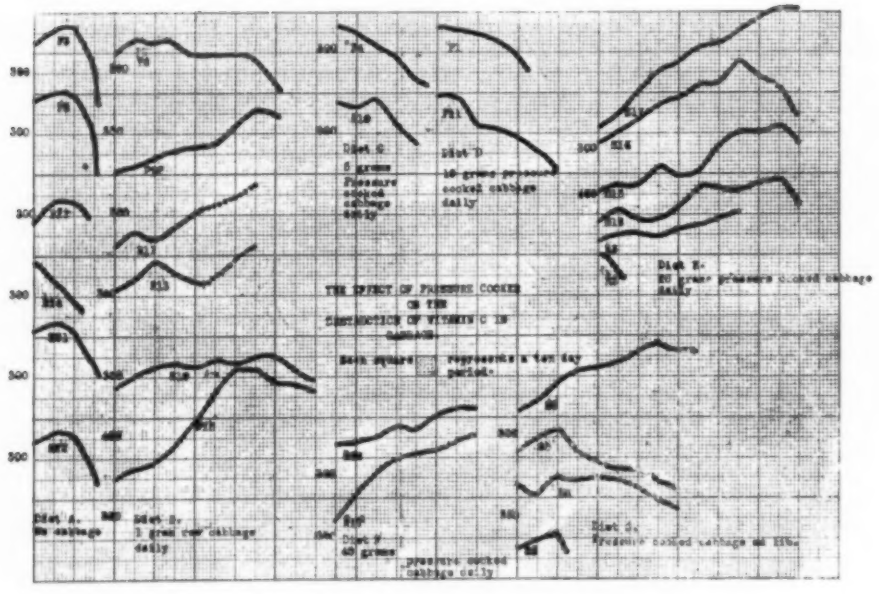
Diet A.
No cabbage
Diet B.
1 gram raw cabbage daily
Diet C
5 grams pressure cooked cabbage daily
Diet D
10 grams pressure cooked cabbage daily
Diet E.
20 grams pressure cooked cabbage daily
THE EFFECT OF PRESSURE COOKED CABBAGE ON THE DESTRUCTION OF VITAMIN C IN CABBAGE
Each square represents a ten day period.
Diet F
40 grams pressure cooked cabbage daily
Diet G.
Pressure cooked cabbage ad libitum

CHART I

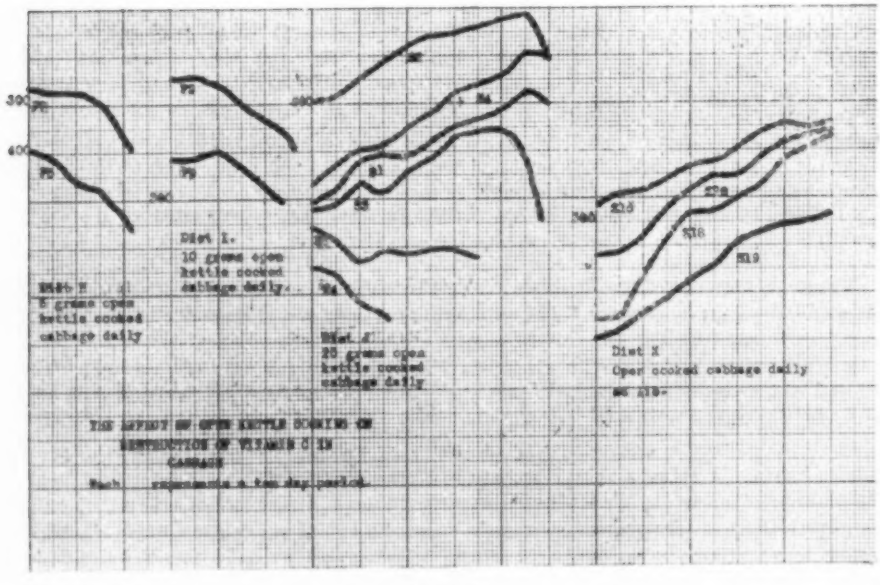
Diet I.
10 grams open kettle cooked cabbage daily.
Diet H
5 grams open kettle cooked cabbage daily
Diet J
25 grams open kettle cooked cabbage daily
Diet K
Open cooked cabbage daily
ad lib.
Each square represents a ten day period.

CHART II

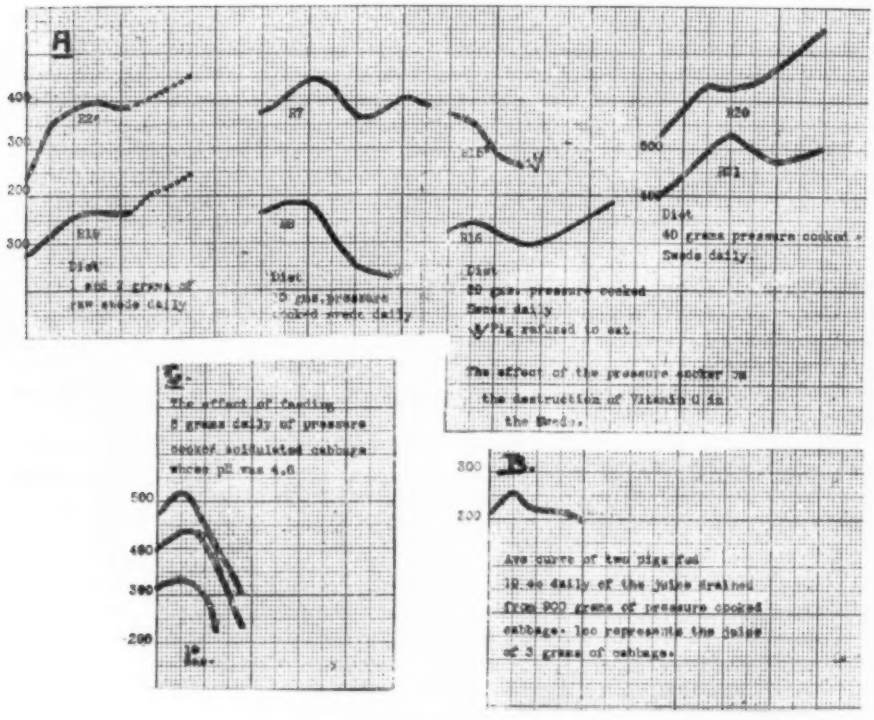
A
Diet
1 and 2 grams of raw swede daily
Diet
5 gms. pressure cooked swede daily
Diet
40 gms. pressure cooked Swede daily
Pig refused to eat
The effect of the pressure cooker on the destruction of Vitamin C in the Swede.
Diet
Rabbit
The effect of feeding 5 grams daily of pressure cooked acidulated cabbage whose pH was 4.6
B.
Ave curve of two pigs fed 10 cc daily of the juice drained from 200 grams of pressure cooked cabbage. 1cc represents the juice of 3 grams of cabbage.

CHART III

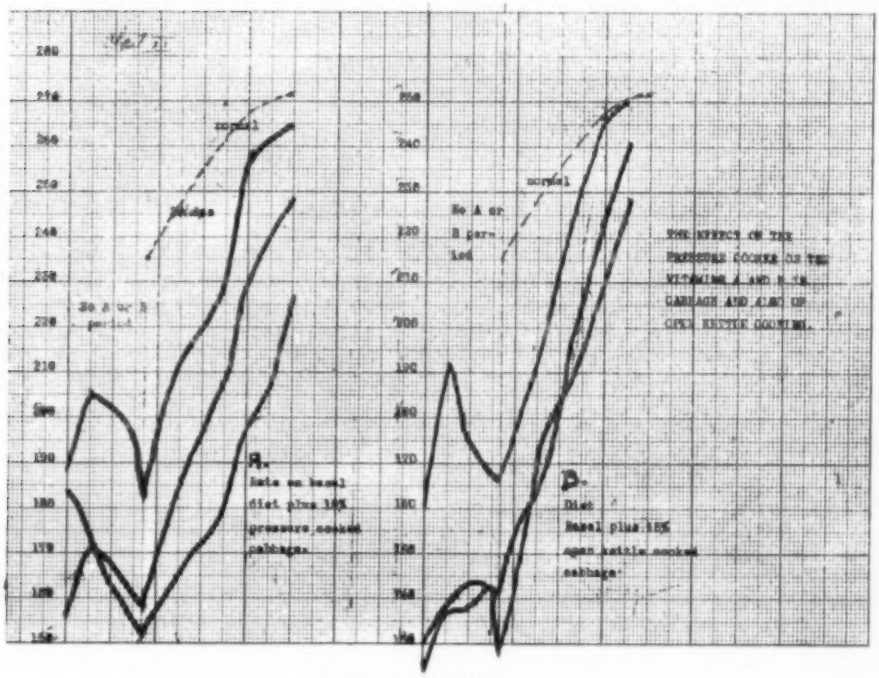
normal
Rabbits
No A or B gms. fed
A.
Rats on basal diet plus 10% pressure cooked cabbage.
normal
No A or B gms. fed
THE EFFECT OF THE PRESSURE COOKER ON THE VITAMINS A AND B IN CABBAGE AND ALSO OF OPEN KETTLE COOKING.
B.
Diet
Basal plus 10% open kettle cooked cabbage.

CHART IV

given dosage of Harris vitamin which was immediately restored to a normal rise by doubling the dosage of that vitamin in the diet. We believe the downward trend of some of our control curves and of some of the twenty gram cooked cabbage curves may well be due to growth stimulus deficiency. Since the basal diet is rich in both A and B vitamins it is suggested that the deficiency is in the C vitamin, one gram being sufficient to prevent pathological symptoms but not sufficient for continued growth. The result with the pigs receiving 40 grams cooked cabbage daily or an ad lib supply, combined with autopsy studies still further confirms this view point. Especially since all other declining weight curves of the scorbutic animals were adequately explained by failure of food intake.

The results with 20 grams of cooked cabbage daily are sharply differentiated from those with 10 grams. Two of the twelve animals on this diet died within the experimental period but from causes other than scurvy and only one showed any evidence of scorbutic symptoms. In view of Delf's findings that 15 grams was protective, i.e. 93 per cent destruction, and our complete protection with 20 grams, less than 95 per cent destruction, there seems to be as sharp an agreement as could be expected under the variable character of the conditions of the two experiments.

The results with the animals which were allowed to eat cooked cabbage ad lib are especially interesting. A careful record of daily intake was taken. The figures are as follows: Daily intake of open kettle cooked cabbage when given ad lib: First twenty days, 36 grams; 2nd twenty days, 39 grams; 3rd twenty days, 39 grams; 4th twenty days, 42 grams; 5th twenty days, 46 grams.

The animals fed on pressure cooked cabbage ad lib unfortunately did not supply so satisfactory data, as these animals became infected with pneumonia and several succumbed to this disease. Their intake for the first forty days, when they appeared normal, was as follows: first 20 days, 32 grams; 2nd twenty days 39 grams.

It will be noted that when left to choose, the animal definitely increases his intake with rise in weight. The intake of those animals on variously supplemented basal diets was also noted in all cases but a few selected cases in each group will serve to indicate the trend. See table II.

TABLE II

Daily intake of basal diet

PERIODS	GROUP A—NO CABBAGE	GROUP B—1 GM. RAW	GROUP E—20 GMS. PRESSURE COOKED	GROUP J—20 GMS. OPEN KETTLE	GROUP G—PRESSURE COOKED AD LIB.	GROUP K—OPEN KETTLE AD LIB.
1st 10 days	18	19	18	18	16	17
2nd 10 days	15	18	16	19	12	15
3rd 10 days	10	22	21	21	17	25
4th 10 days		23	22	28	17	30
5th 10 days		23	29	21	15	28
6th 10 days		25	24	27		31
7th 10 days		29	30	28		34
8th 10 days		31	29	26		31
9th 10 days		32	38	27		36
10th 10 days		35	33	25		35

In calculating the per cent destruction in our series we have assumed that if 20 grams of the cooked cabbage was protective and 1 gram of raw was equally protective the destruction would be: $\frac{20-1}{20} \times 100 = 95$ per cent.

Such a general calculation fails to take into account the varying weights of the animals. If we adopt LaMer's method and reduce our dosage to the amount per 300 grams of body weight, taking the weight of the animals as it was at the beginning of the experimental feeding our pigs receiving 20 grams of cooked cabbage daily would have had the following dosage:

SERIES I—20 GRAMS PRESSURE COOKED CABBAGE DAILY		SERIES II—20 GRAMS OPEN KETTLE COOKED CABBAGE DAILY	
Pig No.	Dosage per 300 grams	Pig No.	Dosage per 300 grams
R2	20	R4	16.9
R3	18	R6	17.6
S12	18.2	S1	15.2
S13	14.7	S2	14.7
S14	14.0	S3	15.7
S17	16.5	S4	14.0

On this basis and assuming 1 gram per day as protective the destruction for the two series would be as follows:

Series I	*Per cent*	*Series II*	*Per cent*
R2	95	R4	94
R3	94	R6	94
S12	94	S1	94
S13	93	S2	93
S14	93	S3	94
S17	94	S4	94
Average	94	Average	94*

*That is, in excess of Delf's figure of 93 per cent, and under 95 per cent.

Autopsy findings: The gross symptoms of scurvy are sufficiently well known to need no special description here. In the case of the no-cabbage series, 5 and 10 gram cooked-cabbage groups, these symptoms were marked including swollen hemorrhagic joints, brittle jaws and bones, loose teeth, and scorbutic beading of the ribs.

Interpretation of results: In terms of the human infant, Holt gives 1/3 teaspoons of orange juice daily (5–15 cc.) as protective against scurvy. Hess has found tomato juice equally effective in equivalent doses. If we take the maximum amount (15 cc.) as the human requirement and 2–3 cc. of the juices as the guinea pig minimal protective dose, it would follow that an infant's requirement is not more than 5 times that of the guinea pig. If again we assume that the cooking process has produced 95 per cent destruction which the preceding experiments indicate as the maximum destruction, we can conclude that, since 20 grams of cooked cabbage protects the pig, the human requirement will be at least 100 grams of cooked cabbage or about 3½ ounces per day. It is therefore entirely possible to eat cooked cabbage and obtain protection

against scurvy if we will eat enough of it, but it also indicates the much higher antiscorbutic value of the vegetable when served raw as a salad.

Typical protocols

	PIG S2	PIG S10	PIG S12*	PIG S13
Diet	No cabbage	1 gm. raw	20 grams P. C.	20 grams P. C.
Death in	31 days	Chloroformed after 97 days	Chloroformed after 97 days	Chloroformed after 99 days
Hemorrhages	Marked in left femoral muscles, into both front legs, into lumbar muscles and into left jaw muscles	None	Marked into femoral muscles, some into small intestine, marked along spine and into skin along left front leg	None
Brittleness	Some	Normal	Normal	Normal
Condition of gums	Anemic but not sore or swollen	Normal	Anemic	Normal
Teeth	Apparently normal	Normal	Normal	Normal
Ribs	Noticeable beading	Normal	Very slight beading	Normal
Adrenal weights	631 mgm.	414 mgm.	367 mgm.	502 mgm.
Scurvy	Positive	Negative	Incipient?	Negative

* S12 was the only one of our animals on 20 grams cooked cabbage that showed any symptoms of scurvy.

It is an observed fact that the water in which cabbage is cooked is an excellent extractant for vitamins A and B. C can also be removed by water, being soluble in this medium. It might follow that, in the process of cooking, our figure for destruction is too high in that it represents loss both by heat and by extraction and that if we fed the juice of the cooked cabbage we would reduce the loss figure. We have not as yet had time to determine fully the extent to which this criticism is applicable. We have, however, conducted a single experiment with two guinea pigs which were fed the juice drained from 900 grams of pressure cooked cabbage. This juice totalled 300 cc. in volume and was fed in daily doses of 10 cc. each. This dosage failed to protect the guinea pigs from scurvy. See Chart III, B. It would therefore follow that, since the juice of 30 grams of cooked cabbage fed daily is inadequate for protective action, the cooking process is sufficiently drastic to destroy the vitamin in the juice almost completely even if it is extracted by the water, and we have little encouragement to use the juice to supplement the cooked cabbage deficiency in the case of vitamin C.

Experiment II. To determine the causes of destruction of vitamin C in the process of cabbage cooking.

In their book, "The Vitamins," Sherman and Smith discuss the problem in the light of LaMer's work and other experiments conducted in the Columbia laboratory and elsewhere. They say:

"Vitamin C is much more readily destroyed than vitamin B both by oxidation and by heating per se. The studies of the heat destruction with reference to time and temperature warrant the general view that for short periods of time (one hour or less) the reaction runs rapidly and therefore in such cases the length of time of heating is likely to be a more serious factor than the temperature, while for longer periods (four hours or more) the effect of temperature assumes relatively greater prominence in comparison to the time than it does in shorter periods. . . . . *In practice this would mean that when a desired effect in cooking or canning can be accomplished much more quickly by using a higher temperature it will probably be advisable to do so*,[8] but that when the food is to be kept for a considerable time it becomes more important from the vitamin standpoint that the lowest practicable temperature be maintained. . . . . Vitamin C is more stable in an acid than in a neutral medium and still less stable when the medium is alkaline. Even in storage at low temperature the loss of antiscorbutic value is much more rapid in a food that has been rendered slightly alkaline than in one that is distinctly acid. The antiscorbutic vitamin is apparently not appreciably sensitive to ordinary light. To ultra-violet light it appears to be relatively stable, resembling vitamin B in this respect."

Our results with the pressure cooker seem to confirm the italicized statements in the quotation from Sherman and Smith, since 20 minutes at 248°F. (120°C.) failed to produce any greater destruction than 45 minutes at 212°F. (100°C.). In the use of the pressure cooker then we will get no greater destruction of vitamin C than if we use the open kettle, provided we limit the time in the former to that necessary to secure a palatable product of the same quality as that evolved with the open kettle.

When we inquire as to the reasons for the very high degree of destruction of cabbage vitamin C as compared with tomato vitamin C we would naturally expect that the difference lies in the difference in reaction of the two food-stuffs, or in the difference of oxygen content. At first glance the acidity difference would seem to be the more important factor since it was our experience that cooked cabbage juice varied between pH 5.4 and 5.6 while tomato juice has a natural acidity of about pH 4.2. In an article entitled "The relation of processing to the acidity of canned foods," Bigelow and Cathcart[9] have pointed out that processing tends to lower the pH value, i.e. to increase the acidity (see Table III, taken from their report), hence the effect of our cooking would have tended to increase protection instead of decrease it if the acidity factor was the sole factor concerned.

TABLE III

The pH value of cabbage liquor

pH of juice pressed from raw cabbage	5.5
pH of juice after processing 30 minutes at 212°F.	5.56
pH of juice after processing for	
60 minutes at 212°F.	5.3
90 minutes at 212°F.	5.2
20 minutes at 240°F.	5.4
40 minutes at 240°F.	5.25

[8] The italics are ours.

[9] "Relation of Processing to the Acidity of Canned Foods" by W. D. Bigelow and P. H. Cathcart. Bulletin No. 17-L, Research Lab., National Canners Association.

If the heat destruction of vitamin C is reduced by lowering the pH it should follow that acidified cabbage should resist heat destruction effects markedly. It will be recalled that Delf found that this result did not follow. In her experiments she used citric acid as the acidifying agent. To test out this point we decided to attempt the cooking of cabbage in water acidulated with vinegar. We proceded to this experiment by adding vinegar to the cooking water in definite proportions and at the end of the cooking period determined the pH of the drained off juice. This pH was 4.9. Our results parallel those of Delf. When this acidulated cabbage, cooked in pressure cooker for the same time as in the previous experiments, was used in 5 gram daily doses we got no evidence of protective action. We selected three pigs of different weight and physical stamina for this experiment and while their resistance varied, all died with acute scurvy symptoms in less than 36 days. (See chart III, C.) We cannot explain this result. It has been suggested by Dr. Bigelow that a food stuff to which acid is added may have an entirely different internal pH from one that has natural acidity even though the drained off juice is acid, the difference being one of permeability of the acid into the tissue cells. We are now investigating the effect of the acidulation of expressed juice of raw cabbage as contrasted with the juice of cabbage cooked in acid to determine whether the criticism is justified. These results are not yet complete but are sufficiently advanced to show little or no protection. At present then, we can report that we have, like Delf, been unable to protect the cabbage vitamin by addition of acid to either the cooking cabbage or to the hydraulic pressed raw juice. Another suggestion lies in the possibility that since cabbage is a leaf structure and active in photosynthetic processes the difference may be one of intracellular oxygen. We therefore sought a vegetable of nearly similar vitamin content, but morphologically different in structure. Such a foodstuff is the rutabaga or swede. Furthermore the swede is a root and notably lacking in occluded oxygen. The pressure cooker is an admirable instrument for this study since its operation involves the removal of all atmospheric oxygen before the cooking process fairly begins.

The results of the experiment are shown in Chart III, A. Two pigs were fed on the basal diet plus one gram of raw swede daily. Protection was complete, but as in the case of cabbage it was necessary after the 45th day to increase the dose to two grams of raw swede to maintain the growth curve. This experiment indicates that the cabbage and swede are of about the same value as sources of the vitamin or at least that the swede is as good as the cabbage. Delf did not report studies on the swede itself but she did study the expressed juice. Her findings on the minimal protective dose were as follows: raw juice—cabbage, 1–1.5 cc. daily, swede 2–5 cc. daily; after 1 hr. at 212°F.—cabbage 7.5–10 cc., swede 5 cc. daily.

These results suggest that the expressed juice of the swede, while slightly inferior in vitamin to cabbage juice, resists heat better. Our results do not show any superiority of the swede to resist heat over the cabbage, for, while one pig on 10 grams of cooked swede did survive without marked scurvy symptoms for a 70 day period, the other member of that series succumbed to scurvy in 55 days which is a protection of no greater magnitude than that accorded by the same quantity of cooked cabbage (45–59 days). Since Delf's results show that the expressed juice of raw cabbage is if anything more susceptible to heat than swede juice and ours that the root structured swede fails to resist heat any more effectively than the leafy cabbage, it would seem to follow that we cannot lay the difference in susceptibility to heat to difference in oxygen content of the two structures.

Hess and Unger's work may be recalled in this connection. These authors studied carrots and found that while it required 35 grams daily of old carrots to prevent scurvy, 10 grams of young carrots were protective. The basal diet in their experiments was hay and oats. They also found that cooking the old carrots in vinegar for 45 minutes failed to protect the vitamin.

There seems then to be a harmony in the results of Delf and Hess and agreement with our experiments indicating that, while there is no doubt that oxygen is a factor in the destruction of vitamin C in general and that acid protects the vitamin in fruits such as tomatoes and

oranges, the known factors heat, oxygen, alkalinity, etc. are inadequate to explain the differences in sensitivity in all sources. We have still to seek for the reasons which underlie the peculiar response of cabbage vitamin to the destructive action of heat. We have of course not yet eliminated oxidation effects due to other causes than oxygen itself and further experiments are now in progress.

Experiment III. To determine the value of cooked cabbage as a source of vitamins A and B.

Daniels and McClurg report that when 250 grams of cabbage heated for 15 minutes at 248°F. were added to 100 grams of dry basal ration, otherwise adequate, the mixture supplied ample vitamin B for growth. Boiling the cabbage until tender made no difference in the sufficiency of this ration in vitamin B.

Hume first reported that even when cabbage is steamed two hours at 212°F. 15 grams daily provides an adequate supply of vitamin A, and concludes that no loss of A is indicated by the cooking process. Campbell and Chick confirm Hume's results with the statement that the equivalent of 15 grams of the uncooked cabbage per pig per day is adequate supply of A even after an hour's cooking at 212°F. but to make this hold true it is necessary to include the liquor produced in the cooking as this extracts some of the vitamin. In other words these authors agree that cooking does not destroy vitamin A but may extract it from the source.

Delf found no loss of vitamin A even when cooking was continued one hour at 248°F. Two hours at this temperature or one hour at 266°F. gave evidence of only a slight loss but two hours at 266°F. produced distinct loss. From all of these results it would seem safe to assume that ordinary cooking would have little destructive effect on these two vitamins. In order, however, to complete our data with direct experiments on the cabbage and cooking processes which we were studying, we carried out one experiment with rats in which 15 per cent of the otherwise adequate basal diet was supplied by pressure cooked cabbage in one case and open kettle cabbage in the other. Rats were first fed on a diet free of both A and B until they declined in weight. They were then transferred to the cabbage supplemented ration. Chart IV shows the results. This result confirms the views of the workers cited that cooking has little effect on vitamins A or B and that if the diet contains the supply necessary in the raw form, cooking at ordinary temperatures and times will not reduce the content sufficiently to be significant.

SUMMARY AND CONCLUSIONS

The studies reported indicate that the cooking of cabbage or swedes until of proper quality for the table produces a destruction of vitamin C in these sources that is greater than 90 per cent and less than 95 per cent.

They indicate further that the higher temperature of the pressure cooker is of so short duration as to fail to increase the destructive action of the cooking and that this implement can be used in the cooking of these vegetables without fear of increasing destruction of vitamin C if we limit the time to that necessary to obtain cabbage of equal cooked quality.

Acidifying the cabbage with vinegar fails to conserve the vitamin. Our results in this direction indicate that the difference of susceptibility of cabbage vitamin C to heat as compared with tomato juice vitamin C cannot be explained by the difference in pH of the raw materials, con-

firming previous experience of Delf with citric acid and Hess's experiments with carrots and vinegar.

Since the swede and the cabbage are nearly equally good sources of vitamin C in the raw state and both substances seem to suffer equally through cooking, the view of the peculiar susceptibility of the cabbage as being due to its leaf structure and occluded oxygen seems to be untenable.

One limited experiment confirms the views of others that the cooking process has little if any destructive effect upon vitamins A and B in cabbage.

The nature of all the causes that make for difference in susceptibility of vitamin C as found in various sources seems therefore still incomplete unless further experimentation shall develop an oxidation effect traceable to other factors than oxygen itself.

BLACK STAIN FOR TABLES

A formula is given *in Glass Industry*[1] for a solution used to give a black color to table tops. This is useful for laboratory tables as well as for the glass workers' cutting tables. Directions follow:

Solution No. 1	*grams*	*Solution No. 2*	*grams*
Copper sulphate	125	Fresh aniline oil	150
Potassium chlorate	125	Concentrated hydrochloric acid	180
Dissolve in water and dilute to one liter		Water	1000

Apply two coats of solution No. 1, boiling hot, with a paint brush. Allow the first coat to dry before the next one is applied. Keep the volume of the solution constant during the heating.

When the second coat is dry apply two coats of solution No. 2, boiling hot. When the wood is completely dry, wash off all excess chemicals with hot soap suds, until the color is a dark green. Finish with raw linseed oil. Rub down the oil with cloth or sponge until a jet-black, polished surface is obtained. Whenever the table becomes dull, rub with linseed oil.

[1] *Glass Industry*, 1922, 3: 158.

EDITORIAL

1923. The JOURNAL extends to all its readers the Season's Greetings and cordial good wishes for the New Year.

In view of the rapid development of the American Home Economics Association, the JOURNAL is anticipating the most successful year of its history. The staff is confident of the support of all women interested in home economics to the end that the quality of the material shall be of high professional standard; that the volume and scope of contributions may be enlarged; that by an increased circulation the JOURNAL may reach and represent all workers in the broad field of home economics.

The Next Annual Convention of the American Home Economics Association. It was decided, at the Corvallis convention, to hold the 1923 meeting in Chicago, with the headquarters at the University of Chicago. President Judson welcomes the Association by the following letter to President Blood:

"It is my understanding that the American Home Economics Association is to meet with the University of Chicago in the Summer of 1923. I am much gratified that the Association is coming here and shall be glad to have all possible done to make its success interesting and profitable."

National Thrift Week. Wise spending of time, strength, and money; wise choice of goods and pleasures; wise use of materials, leisure, and opportunity; all make for thrift.

National Thrift Week should remind every home economist afresh that our profession is built upon a definition of which such thrift is the basis. "Economics, the science of wise choices" certainly holds a challenge for us all. If we aspire to be home economists in the broadest sense we must realize that it is only when we are choosing wisely that we are succeeding in maintaining a good professional standard. Are we training the child in mental or physical habits? Wise choice of action is necessary. Are we teaching nutrition? The choice and wise use of foods make up our subject matter. If it be clothing or textiles, the choice and wise use of fabrics is our basis. Choice in methods of production, distribution, and consumption of strength, time, and goods, is the basis of all home economics teaching and practice.

While we emphasize the need of wise choice by the celebration of a National Thrift Week once a year, we must have as the foundation of our professional work, indeed of our own living, the true thrift which is continuous wise planning, choice, and utilization of strength, time, goods, and money.

S. AGNES DONHAM.

The Ellen H. Richards Memorial Fund of Vassar College. It is thought that the readers of the JOURNAL will be interested to know the working out of one of the most important of the funds that were raised in memory of Mrs. Richards. This was the fund of $25,000 established in 1915 under the following conditions.

First, that for a period of five years from 1915, the income of the fund be appropriated to secure annually a lecturer of distinction who shall give to the students of Vassar College a lecture or lectures along the line of Mrs. Richards' interest in the development of euthenics or the science of right living.

Second, that at the close of each five years, the disposition of the income of the fund for the succeeding five years be determined by a committee of three members representing the Trustees, the Faculty, and the Associate Alumnae.

In November, 1916, the President invited Professor Irving Fisher of Yale University, who had been a personal friend of Mrs. Richards, to deliver the first lecture on the Foundation. His lecture "Life Extension" was delivered at the college on April 6, 1917, and was afterwards printed and distributed to the students of the college.

The lectures under the Ellen H. Richards Memorial Fund in 1917–1918 were based upon Mrs. Richards' definition of science and right living as "the science of controllable environment."

During the period 1918–1919 the Richards' lectures sounded the note of world environment and the control of life as evidenced in adjustments of the period.

The Fund Committee decided that the income of the Ellen H. Richards Fund for the five years, 1920–1925 should be devoted to instruction in physical education, hygiene, pediatrics, and the habits of right living as advocated by Mrs. Richards, through illustrative material and public lectures which might be printed and circulated.

The Committee hopes that a part of this fund may make possible the promotion of international coöperation.

The Committee also wishes to emphasize the fact that one of the purposes of this fund is to keep alive the memory of Mrs. Richards herself as well as of her work; and would suggest that the students should be given the opportunity each year of becoming familiar with the inspiration of Mrs. Richards' achievements.

Sources of Iodine in Our Food Supply. The minute trace of iodine found in man's body is located in the thyroid gland into whose secretions and functions it enters. The isolation and naming of "thyroxin," the iodine-containing substance of the thyroid, is credited to Kendall,[1,2] who used three tons of thyroid gland to obtain 33 grams of thyroxin. Of the several abnormal conditions which are manifestations of imperfect working of this gland, perhaps simple goiter is most commonly recognized by lay-people.

Goiterous regions are found in many parts of the world; indeed, goiter is so widespread in certain localities that it is regarded as an asset to physical beauty. The important goiterous regions in the United States are the Great Lakes district and the great Northwest. (See the article by McClendon for a map of the incidence in the United States.) The successful treatment of this enlargement of the thyroid consists of the administration of iodine, as has been demonstrated with adolescent school girls,[3] as well as with experimental animals.

Where there is fortunately a natural supply of iodine, goiter is not prevalent. This natural supply may be condimental salt, drinking water, sea-air, or sea-foods. Ordinary plant and animal foods are totally free from iodine[4] and sea-foods, such as fishes and sea-weeds, which do contain it have only a limited usage in inland districts. Sea air, carrying its salt spray, penetrates inland only a short distance. The iodine content of drinking water depends upon nearness to the ocean and the salt character of the soil over which it passes. Most of the condimental salt used in this country is iodine-free,[5,6] made so in most cases by recrystallization and purification of the brine pumped up from the salt-well, in which case any iodine or bromine removed is sold as a by-product. Not all salt beds of the world are natural sources of iodides, however, owing to the leeching action of surface and underground waters on this, the most soluble of all the salt of the bed. Only a small fraction of our market salt is made by evaporating sea-water and this is carefully freed from its iodine-containing impurities.

[1] Kendall, E. C.: Isolation of the Iodine Compound which Occurs in the Thyroid. *Jour. Biol. Chem.*, 1919, 39: 125. Also, Chemical Identification of Thyroxin, *ibid*, p. 265.

[2] Editorial, *Jour. Home Econ.*, 1920, 12: 136.

[3] Marine, D. and Kimball, O. P.: Prevention of Simple Goiter in Man, *Jour. Amer. Med. Assn.*, 1921, 77: 1068.

[4] Forbes, and Begele: *Ohio Agr. Exper. Station Bul.*, 299, 1916.

[5] Hayhurst, E. R.: Present Day Sources of Common Salt in Relation to Health and Especially to Iodine Scarcity and Goiter, *Jour. Amer. Med. Assn.* 1922, 78: 18.

[6] McClendon, J. F.: Are Iodides Foods? *Science*, 1922, 55: 358.

An iodine rich table salt would furnish the minute amount which is the daily iodine requirement of man. Such a salt is what Hayhurst and McClendon have in mind when they urge the use of unpurified, evaporated sea-water for dietary purposes. Hirschfelder[7] suggests a method of making iodine-rich salt in the home by mixing very small amounts of potassium iodide, which can be purchased at any drug-store, with the ordinary salt to be used for table or cooking purposes. He does not say that this "iodized" salt has already been in use but the suggestion is a sane one and his directions for making the salt are easy to follow. Such uses of iodine-containing salt, it is believed, would obviate the necessity of giving, periodically, the medicine-like doses of iodide which have proved so efficacious.

SYBIL WOODRUFF.

OPEN FORUM

Judging Meal Preparation and Serving. In no type of project is it easier to get "whole-hearted, purposeful activity" than in the preparation and serving of a meal. The announcement by the instructor that the class may serve a meal on a certain day, furnishes the "drive." For this type of project, Dr. Kilpatrick[1] suggests the following steps: "purposing, planning, executing, and judging." The students should, as far as possible, take all the steps themselves. Too often, the purposing and planning are done by the instructor, and the judging consists of a few criticisms by the instructor the next time the class meets. Executing, or preparing and serving the meal, is the only step taken by the students. To help the students to engage in all four steps, the following score card was worked out for use in classes in the Pullman High School, taught by student-teachers from the State College.

The class first learns how to make attractive menus, then each girl makes out a menu. These menus are criticized by the class and suggestions are made for their improvement. The score card is presented carefully. The instuctor divides the class into small groups of from four to six. These groups decide upon the menus, select a host and hostess, and invite their guests. The duties are as follows:

[7] Hirschfelder, A. D.: A Simple Method for Administration of Iodides in the Food in Goiterous Regions, *Jour. Amer. Med. Assn.*, 1922, 79: 1426.

[1] The Project Method, p. 16.

Duties of hostess

1. Has general oversight of the meal from planning to clearing up.
2. Invites the guests and is responsible for their comfort and pleasure.
3. Presides at the table and serves dishes usually served by a hostess.
4. Makes out a list of the supplies needed and, if possible, does the marketing.
5. Lists tasks to be done, assigns them to different members of the group, decides when each is to be done, and sees that they are done.
6. Chooses the decorations for the table.

Duties of the host

1. Sits at the head of the table.
2. Serves dishes usually served by a host.
3. Executes tasks assigned by the hostess in the preparation of the meal and in clearing up.

Duties of other members of the group

1. Execute tasks assigned by the hostess in the preparation of the meal and clearing up.
2. Serve or start things placed near them on the table.
3. Helping to foresee needs of others at the table and supply them.
4. Conversation. Equally responsible with host and hostess.

After the meal is over, the entire process is reviewed and scored by the members of the group. There is keen rivalry among the groups for the highest score. During the semester each girl has had a turn acting as host and as hostess.

SCORE CARD FOR JUDGING, PLANNING, PREPARING, AND SERVING A MEAL

I. Planning the meal 20
   1. The menu
   2. Cost
   3. Marketing. Sufficient materials but none to be wasted
   4. Tasks listed, assigned, and time set for their performance

II. Preparing the meal 25
   1. No materials wasted
      a. In preparation of food for cooking
      b. By undercooking or overcooking
      c. By allowing to run over
      d. By not removing all materials from utensils
   2. Time saved by
      a. Not using more dishes than necessary
      b. Assembling materials and utensils before beginning work
      c. Putting dishes to soak as soon as emptied
      d. Washing up as many dishes as possible before meal is served
      e. Having plenty of hot water ready at all times but especially for dish-washing
   3. Neatness
      a. Desks, dishes, floor (pantry and laboratory)
      b. Manipulation
      c. Self—not spattering apron
      d. Wiping hands on towel—not on apron

III. Serving the meal 25
1. Food ready to serve at appointed time
2. Food served at its best
3. Dining room comfortable
4. Table attractive
5. Food attractive in appearance and flavor
6. Nothing forgotten that should have been put on table
7. Serving

IV. Atmosphere and hospitality 15
1. Needs of those at table foreseen and supplied by members of group
2. Conversation

V. Clearing up 15
1. Care of leftovers
2. Washing dishes properly—scraping, stacking, washing glass and silver first, etc., using rinsing water
3. Leaving rooms and equipment in order (including pantry)

Total 100

CATHERINE T. BRYDEN,
State College of Washington.

The Project Method of Teaching. To me this means a new point of view in teaching, which is in keeping with a changing idea of education. This point of view holds that education is for living; that "mastering the arts of living" is accomplished by living and in no other way; that the materials of education cannot be remote and foreign to the child's experience, but the stuff of education must be made up of the stuff that makes up life.

So the project method of teaching means the providing by the teacher, of situations that are the child's life situations, and which involve (as do all life situations) the solution of problems; and because the child feels the relation of the problems to his own living and feels the need of their solution, eagerness and purpose are involved in his learning. It becomes vital to him. It is not a thing imposed on him, but it is a thing he wants.

MARY F. HENRY,
Cornell University.

Table Service. There seems to be a wide spread interest in modifying school courses in table service. Over 150 requests have been received for copies of the course mentioned in the Open Forum of the September JOURNAL. Most of the requests were from high school teachers, showing that they are in sympathy with such a modification of courses as shall make them more practical.

BOOKS AND LITERATURE

Supervision of the Special Subjects. By L. S. GREENE. Bruce Publishing Co., 1922, pp. 161. $1.35.

In this book we have a clear and comprehensive account of the duties and obligations of the supervising official.

Following a general survey of the field, Mr. Greene gives a detailed recital of the supervisor's executive duties, illustrating many types of records and reports. His suggestions along the line of vocational guidance are particularly helpful.

The supervisor's duties as an organizer and his professional relationship complete a work of interest and value to teacher training institutions and to those already in the field of supervision of special subjects.

SARAH E. BOWER,
New York City.

Basal Metabolism of Infants Fed on Dry Milk Powder. By FRITZ B. TALBOT. Reprint No. 724 Pub. Health Reports, U. S. Pub. Health Service, January 20, 1922, pp. 116–123, charts, 8.

Continuing earlier work (Price in Pub. Health Reports, April 2, 1920) metabolism studies were carried on which are reported in detail. The results obtained, according to the author, "show a tendency for the boys to fall within, or very close to, the standard variations, the greatest deviation being in the calories per kilogram of body weight. The metabolism of the female infants, on the other hand, ran higher and, with a few exceptions, fell more than 10 per cent above the average, but are not outside of the extreme normal variation." This difference in the metabolism of the different sexes is in accord with the observations of others. "The results of the findings of this study on the basal metabolism of infants fed on dry milk powder show either a normal or a slight elevated 'basal' metabolism. Coincident with most of the cases of an elevated metabolism there was an elevation in temperature to 99° to 100°F.; but as far as the writer has been able to determine, such slight elevations of temperature are not sufficient to explain the slight increase in the metabolism. . . . All precautions were taken to insure quiet periods, and careful pulse and kymograph and visual records were kept of the infants during the metabolism periods to warrant recording the results as pure 'basal' findings. The basal metabolism of this series of infants fed on dry milk powder mixture tends to be slightly higher than that of average normal infants, but is within normal limits. This may have been due to the relatively high protein content of the food, but the deviations from the average are not great enough to permit any striking conclusions to be drawn."

Recipes for use in the Dining Service Department of the Pacific Telephone and Telegraph Co., San Francisco, California, 1922.

As an outgrowth of the endeavor to maintain a high and uniform standard of service, these recipes have been compiled for the use of all company operated dining rooms. The company provides all their dining rooms with standard measuring cups, spoons, ladles of three sizes, automatic dishers of five sizes, and other utensils that they have made to order to meet their needs. In the first part of the book is a long table of accurate weights and measures of many common foodstuffs, a table on the containers and measures and their equivalents, a table giving the number of servings per quart or gallon for their automatic dishers and standard steel ladles.

The book contains practically all recipes that would be commonly used. They are compiled so as to give the amounts for different numbers of orders. All quantities of ingredients given are accurate, even to the exact amount of seasonings and flavorings; directions are specific and include the size of the server to use in serving.

Educational institutions would do well to offer similar contributions to the meager institutional literature now available. It is to be hoped that the Pacific Telephone and Telegraph Company will place their book on the market for the benefit of institution administrators.

ALICE H. MUSTARD,
State College of Washington.

Five Short Home Economics Plays; The demand for these plays, published in one pamphlet, has been such that a second edition is being printed. Copies may be had from S. Deborah Haines, Michigan State Normal College, Ypsilanti, Michigan. Price 15¢ for single copies, 10¢ each in orders for more than six copies to one address.

World Metric Standardization, an Urgent Issue. Compiled by Aubrey Drury and Collaborators. Published by World Metric Standardization Council, 681 Market Street, San Francisco, 1922, pp. 524. $5.00.

This large book is first of all a very comprehensive collection of testimonials in favor of the world wide adoption of the metric units of measures and weights—meters, liters, and grams. In addition to the several chapters of arguments for the metric system, the book contains some historical information of no small interest. This concerns the origins of the British-American and the decimal systems. Although Thomas Jefferson strove in 1786 for a national decimal system for monies, weights, and measures, he failed so far as the latter two were concerned and it was not until 1866 that the metric units were even legalized by Congress. Several attempts have been made since that time to have it made the exclusive standard but the prospects for the success of the effort are brighter now, so the Committee thinks, than they have been at any time. To quote the authors, "The World War brought to the fore the desperate need for metric standardization—made it more than ever a world question."

The publication of such a volume at this time is designed so to crystallize public opinion that the passage by Congress of the pending Britten-Ladd Metric Bill will be assured. Its aim is also to further world wide acceptance of the metric standards. To these ends the testimonials of hundreds of representatives of organized industry, commerce, and professions are submitted.

The total disregard by the authors of the interest which women may have in the passage of such a bill is surprising indeed. These hundreds of testimonials include not one word from any woman of home economics training or homemaking experience. Surely the question is one of considerable concern to the homemaker who is almost the sole buyer of household commodities.

A chapter entitled, "Look it up," gives a bibliography of pertinent literature. The book is probably the most complete ever written upon the subject; it is written from the standpoint of national and world affairs and is not entirely technical.

SYBIL WOODRUFF,
University of Kansas.

BIBLIOGRAPHY OF HOME ECONOMICS

PERIODICAL LITERATURE

Food and nutrition

Bigelow, W. D. Progress in the Canning Industry in the Last Ten Years. *J. Ind. Eng. Chem.*, 1922, 14: 793–794.

Bond, M. Basal Diet for Rat Feeding Experiments. *Biochem. J.*, 1922, 16: 479–481.

Browne, C. A. Moisture Absorptive Power of Different Sugars and Carbohydrates under Varying Conditions of Atmospheric Humidity. *J. Ind. Eng. Chem.*, 1922, 14: 712–714.

Buckner, G. D., and Peters, A. M. The Mineral Content of the Normal White Rat during Growth. *J. Biol. Chem.*, 1922, 54: 5–9.

Christie, A. W. Dehydrated Pumpkin Flour. *Am. Food J.*, 1922, 17, No. 7, 7–8, 32.

Clark, T. Nutrition in School children. *J. Am. Med. Assoc.*, 1922, 79: 519–525.

Cunningham, A. R. The Allergic or Hypersensitive Condition. A review of two years progress. *Am. J. Diseases Children*, 1922, 24: 247–268.

Davison, W. C. The Failure of Yeast Therapy in the Feeding of Infants. *Am. J. Diseases Children*, 1922, 24: 339–345.

Dickson, C. E., Burke, G. S., Beck, D., Johnston, J., and King, H. Studies on the Thermal Death Time of Spores of Clostridium Botulinum. Preliminary report. *J. Am. Med. Assoc.*, 1922, 79: 1239–1240.

Drummond, J. C., Zilva, S. S., Coward, K. H. The Origin of the Vitamine A in Fish Oils and Fish Liver Oils. *Biochem. J.*, 1922, 16: 518–522.

Eddy, C. F. Solvent Extraction of Vegetable Oils. *J. Ind. Eng. Chem.*, 1922, 14: 810–811.

Emery, J. A., and Henley, R. R. Studies on Rancidity. I. The Influence of Air, Light and Metals on the Development of Rancidity. *J. Ind. Eng. Chem.*, 1922, 14: 937–940.

Flowers in Cookery: Their Old-time Use. *The Table*, 1922, 70: 285.

Food Control. *Hotel Mo.*, 1922, 30: 66, 68, 70.

Friedman, G. A., and Gottesman, J. Studies on the Relation of the Thyroid to Pancreatic Diabetes in Dogs. With Suggestions as to Diabetes Mellitus in Man. *J. Am. Med. Assoc.*, 1922, 79: 1228–1234.

Gibbs, W. S. What the Baking Industry Has Accomplished. *Am. Food. J.*, 1922, 17, no. 10, 7–10.

Golding, J., Zilva, S. S., Drummond, J. C., and Coward, K. H. The Relation of the Fat-soluble Factor to Rickets and Growth in Pigs. II. *Biochem. J.*, 1922, 16: 394–402.

Hess, A. F., and Unger, L. J. Infantile Rickets: The Significance of Clinical Radiographic and Chemical Examinations in Its Diagnosis and Incidence. *Am. J. Diseases Children*, 1922, 24: 327–338.

Holt, L. E., and Fales, H. L. The Food Requirements of Children V. Percentage Distribution of Calories. *Am. J. Diseases Children*, 1922, 24, 311–319.

Jameson, H. L., Drummond, J. C., and Coward, K. H. Synthesis of Vitamin A by a Marine Diaborn. *Biochem. J.*, 1922, 16: 482–485.

John, H. J. Differential Diagnosis of Diabetes by Means of Glucose Tolerance. *J. Am. Med. Assoc.*, 1922, 79: 1234–1238.

Ladd, M. Applied Dietetics in Outpatient Departments. *Am. J. Diseases Children*, 1922, 24: 211–217.

Lewis, H. B., and McGinty, D. A. The Metabolism of Sulphur V. Cysteine as an Intermediary Product in the Metabolism of Cystine. *J. Biol. Chem.*, 1922, 53: 349–356.

Martin, C. J., and Robison, R. The Minimum N. Expenditure of Man and the Biological Value of Various Proteins for Human Nutrition. *Biochem. J.*, 1922, 16: 407–447.

McCollum, E. V., Simmonds, N., Becker, J. E., and Shipley, P. G. Studies on Experimental Rickets. XXI. An Experimental Demonstration of the Existence of a Vitamine Which Promotes Calcium Deposition. *J. Biol. Chem.*, 1922, 53: 293–312.

McCollum, E. V., Simmonds, N., and Becker, J. E. On a Type of Ophthalmia caused by Unsatisfactory Relations in the Inorganic Portion of the Diet. An Ophthalmia Not Due to Starvation for Fat-Soluble A and Not Curable by Its Administration. *J. Biol. Chem.*, 1922, 53: 313–322.

More Economic and Scientific Methods of Food Distribution Needed. From Report of Joint Commission on Agricultural Inquiry. *Am. Food J.*, 1922, 17, No. 8, 9–13.

Nicory, C. Salivary Secretion in Infants. *Biochem. J.*, 1922, 16: 387–389.

Parsons, L. W. Progress on Emulsions. *J. Ind. Eng. Chem.*, 1922, 14: 797–798.

Sale, J. W., and Skinner, W. W. Food Flavors. Their Source, Composition, and Adulteration. Part IV. *Am. Food. J.*, 1922, 17, No. 9, 27–28.

Seidell, A. Further Experiments on the Isolation of the Anti-neuritic Vitamin. *J. Am. Chem. Soc.*, 1922, 44: 2042, 2051.

Sharpe, J. S. The Phospholipin of the Blood and Liver in Experimental Rickets in Dogs. *Biochem. J.*, 1922, 16: 486–488.

Sherman, H. C. and Hawley, E. Calcium and Phosphorus Metabolism in Childhood. *J. Biol. Chem.*, 1922, 53: 375–399.

Showalter, M. F., and Carr, R. H. Characteristic Proteins in His Low-protein Corn. *J. Am. Chem. Soc.* 1922, 44: 2019–2023.

Singh, L. A Study of the Relation of Pectin and Acidity in Jelly-m ıg. *J. Ind. Eng. Chem.*, 1922, 14: 710–711.

Skinner, W. W. Formulating Official Food Standard Work of Joint Commission on Definitions and Standards as It Has Thus Far Progressed. *Am. Food. J.*, 1922, 17, No. 7, 9–10, 30.

Starr, H. E. Studies of Human Mixed Saliva I. The Determination of the Hydrogen-ion Concentration of Human Mixed Saliva. *J. Biol. Chem.*, 1922, 54: 43–54.

Starr, H. E. Studies of Human Mixed Saliva. II. Variations in the Hydrogen-ion Concentration of Human Mixed Saliva. *J. Biol. Chem.*, 1922, 54: 55–64.

Talbot, F. B., Sisson, W. R., Moriarity, M. E., and Dalrymple, A. J. The Basal Metabolism of Prematurity II. Relation of Basal Metabolism to Caloric Intake and Weight Curve. *Am. J. Diseases Children*, 1922, 24: 95–101.

Von Meysenberg, L. The Inorganic Phosphate Content of Breast Milk of Mothers with Normal and with Rachitic Infants. *Am. J. Diseases Children*, 1922, 24: 200–203.

Marburg, E. J. Studies on Carbonic Acid Compounds and [H^+] Activities in Blood and Salt Solutions. A Contribution to the Theory of the Equation of L. J. Henderson and K. A. Hasselbach. *Biochem. J.*, 1922, 16: 153–340.

Wesson, D. The Vegetable Oil Industry. *J. Ind. Eng. Chem.*, 1922, 14: 809–810.

Witte, W. C. Sanitation in the Baking Industry. Results of an Investigation Conducted by the Public Health Service for American Bakers' Association. *Am. Food. J.*, 17, No. 10, 18–20.

Textiles and Clothing

Brown, S. Elastic and Non-elastic Narrow Fabrics. *Textile World*, 1922, 62: 33–35, 89.

Copeland, M. T. Economics of the Cotton Industry. *Textile World*, 1922, 62: 126–131.

Fish, O. Varying the Cassimere Finish. The Close or Thread Finish, the Velour Effect, and the Natural Clear Style of Fabric. *Textile World*, 1922, 62: 57–59.

Hausman, L. A. Microscopic Analysis of Fabrics. *Textile World*, 1922, 62: 65–67.

Jenches, L. B. Weaving Machinery and Products. 1. How It Differs from Other Processes for Making Fabrics, Styles of Weaving, Developments Since Early in Nineteenth Century. *Textile World*, 1922, 62: 37–41, 94–95.

2. Details of Modern Methods and Functions of Numerous Special Machinery Devices. *Textile World*, 1922, 62: 103–107.

Millard, E. B. A Department Store Laboratory. *J. Ind. Eng. Chem.*, 1922, 14: 785–786.

Walen, E. D. Science in the Textile Industry. *J. Ind. Eng. Chem.*, 1922, 14: 806–807.

The Strength of Cotton. *Textile World*, 1922, 62: 139–145.

Miscellaneous

Armfield, M. Dynamic Symmetry and Its Practical Value Today. *International Studio*, 1921, 74: 76–85.

Beckmann, A. H. Round Table Conference on Marketing. The Chain Store Grocer. *The American Economic Review*, 1922, 12, (Supplement) 186–191.

Keeble, F. H. S. The Hook Rug.—An American Antique. *International Studio*, 1922, 75: 195–199.

Niblack, E. M. Furniture in Ancient Egypt. *International Studio*, 1922, 75: 184–190.

Northend, M. H. Wall Paper of Olden Time. *International Studio*, 1922, 75: 48–54.

Westropp, M. S. D. Irish Glass. An Account of Glass-making in Ireland from the XVIth Century to the Present Day. Herbert Jenkins, Ltd., London 1922, pp. 206, pls. 40.

NEWS FROM THE FIELD

ARIZONA

The University of Arizona. The Home Economics Club has added twenty-five new members to its roll this year. The Club had charge of the refreshments for a large reception given in honor of Mrs. Marvin, wife of the new president of the University. The club participated in the program held at the Model Home during the Better Homes in America Campaign, October 24–29. The club is planning to invite speakers of note to address them during the year.

Vocational Students Plan Recreation. At a recent state conference of vocational home economics teachers a committee was appointed to work out a course in child care, giving particular attention to proper recreation. In this connection, in one grade school where first, second, and third grade children are dismissed early but must stay on the school grounds to await transportation, the vocational home economics girls are furnishing proper games and stories to keep these little children interested. One school proposes to promote health in the grades through weighing and measuring the children, and by health talks given by high school girls who are taking dietetics and home nursing.

CALIFORNIA

The Central Section of the California Home Economics Association held its first meeting of the new school year on October 14. After the routine business, the revised constitution was read, to be acted upon at the November meeting. The national and state conventions were reported. Ways and means of raising the hundred dollars pledged to the national association for the Executive Secretary Fund were discussed. A committee for a membership drive was appointed.

IDAHO

The Idaho State Home Economics Association was organized in connection with the Teachers' Institute of North Central Idaho and South Eastern Washington, October 25, 1922, and will in the near future seek affiliation with the American Home Economics Association. The officers are: President, Katherine Jensen, head of the Home Economics Department, University of Idaho, Moscow; Secretary, Dorothy Ellis, Home Economics Supervisor for the State Board for Vocational Education, Boise; Treasurer, Ruth Patchin, Assistant Professor of Home Economics, University of Idaho.

A district organization for North Central Idaho was formed and other district organizations are proposed. For the North Central district the officers are Florence Sly, Home Economics Department of the Moscow schools, Chairman; Dora Bowers, Home Economics Department of the Potlatch schools, Secretary. All persons interested in the objects of the association are eligible to membership. Divisions for teachers, homemakers, institutional managers, and extension workers of the county and state will be organized eventually.

ILLINOIS

The Illinois Home Economics Association held its second annual meeting at Decatur October 27–28. This is, at present, the largest of the state associations. It is intended to be an association of and for the whole field of home economics and is not limited to the teaching profession. Homemakers and professional women were included on the program.

Representatives of four different state organizations indicated various points of contact between home economics and the Red Cross, the Department of Health, the Department of Agriculture, and the State Library Association.

The work of the association during the past year has been largely carried on through three committees. These committees gave most gratifying reports of their activities. The committee on the survey of home activities told of the illuminating papers which were sent in response to a questionnaire which was filled out by several hundred homemakers throughout the state; the committee on tests in food and clothing gave reports of the tests which have been given in many schools; and the committee on the nutrition of children reported plans for getting reliable material before the teachers in a usable form.

Following these reports there was a discussion of plans for the coming year. In conformity with the program of work of the national organization, it was voted to appoint a committee to make a study of the various agencies and organizations in the state which are of special interest to home economics workers and to study methods of coöperation with them. As a step toward the establishment of standards of professional equipment, it was decided to undertake the publishing of a directory giving the position and professional training of each member of the Illinois Home Economics Association. The committees already in existence are to be continued with some enlargement of the scope of their activities as their work develops.

The Illinois association has organized into four sections. These sections held business meetings followed by programs which took up the phases of home economics in which each section is most vitally interested.

The officers for the coming year are: President, Ruth A. Wardall, Home Economics Department, University of Illinois; First Vice-President, Grace Hood, Lewis Institute, Chicago; Second Vice-President, Mrs. Hessler, Galesburg; Secretary, Frances Swain, Chicago Normal School; Treasurer, Alice Treganza, Bloomington.

Home Bureaus. Illinois has at present nineteen organized Home Bureaus and five counties with temporary organizations looking forward to permanent Home Bureau organizations within the next few months. Lita Bane, the State Leader, has prepared and sent to all Home Bureau members a motto card which reads as follows:

"The Aim of the Home Bureau: To have every home economically sound, mechanically convenient, physically healthful, morally wholesome, mentally stimulating, artistically satisfying, socially responsible, spiritually inspiring, founded upon mutual affection and respect."

Homemaking Projects in a Settlement. The Peoria Home Betterment Association conducts work in the Neighborhood House, a settlement located in an area populated by Servians, Hungarians, Austrians, Poles, Russians, Syrians, Lithuanians, Jews, and Negroes. The class in Methods of Teaching Home Economics at Bradley Institute has supplied practice teachers in the girls' classes in sewing and cooking for some years. Last fall the students in the Methods Course were told of the organization, development, and purpose of the work at the Neighborhood House. A group was sent to see the equipment and students. They found two kitchens equipped as the kitchens in the homes of the district. Eight girls could work in each kitchen. There was one small bedroom where lessons in house care could be taught. The sixteen girls desiring lessons were from twelve to sixteen years of age. Some of them had been coming to the center for three or four years. Their fathers were employed in the cordage and cold storage companies. With this information the class evolved a series of lessons in three major projects: Food for the Growing Girl, Home Care and Personal Hygiene, The Lunch Basket. A supervisor was always present. The practice teachers developed their own problems.

Every girl in the cooking class was weighed and measured before the work began, and three times during the six months. Health posters, made by the practice teachers in design classes, were used to emphasize particular points in various lessons. These were left at the center.

INDIANA

The Indiana State Teachers Association held its annual meeting in Indianapolis, October 19–21. The Home Economics Section met on the 19th with Mary Beeman, Supervisor of Home Economics in Muncie, presiding, and more than 300 home economics workers in attendance. One of the big things accomplished was the completion of the organization for affiliation with the American Home Economics Association. There are now 92 members under the new constitution.

The greater part of the morning program was given to round table discussions on the proposed new course of study, which, if adopted will be a means toward raising the standards and making for uniformity in the teaching of home economics throughout the state. Other topics discussed were: Home Projects by Bliss Maple of Richmond; Nutrition by Mary Cammack of Indianapolis; Projects in Clothing by Geraldine Hadley of Indianapolis.

Mary E. Sweeny, Executive Secretary of the American Home Economics Association, gave an address on Opportunities in Home Economics and also brought to us the events and plans of the Corvallis meeting. Other speakers were Mabel Wellman, Head of the Home Economics Department at Indiana University, who told of the work being done there on Tests and Measurements in Foods and Cookery, and Ethelwyn Miller of the Herron Art Institute, Indianapolis, who spoke on the use of Tests and Measurements in Textiles and Clothing.

Officers elected for the coming year were: President, Mary L. Matthews, Purdue University; Vice-President, Mabel Fertich, Supervisor Home Economics, Crawfordsville; Secretary, Ruby Clark, Supervisor of Home Economics, Lafayette; Treasurer, Lucy Montgomery, Supervisor of Clothing, Indianapolis; State Councilor, Mary Beeman of Muncie.

Purdue University. To meet the growing demand, a special course has been arranged for juniors and seniors specializing in domestic art with the idea of becoming teachers, extension specialists, designers, or textile chemists. Advanced Dress Design, a one semester course consists of the making of original designs for children's and adults' clothing and the construction of garments following these designs. In the senior year this course is followed by Advanced Dressmaking for one semester and Millinery for one semester. In both these courses emphasis is placed on training for commercial work. In the junior year a course in Advanced Textiles is given for students interested in textile chemistry. A course in Special Problems is offered to seniors in order to stimulate an interest in research and give some general understanding of research methods. A course in Home Economics Extension is offered, including a study of extension work in the United States, a discussion of the methods used in such work, the outlining of projects, and the working out of practice demonstrations.

Agricultural Workers Conference. The twenty-fifth annual conference of the Agricultural Extension workers of Indiana was held at Purdue University, November 1 to 4. It was attended by the county agents, institute speakers and home demonstration agents of the state.

The purpose throughout the meetings was to assist the farmers institute workers in correlating their work with the community activities, an effort being made to furnish help both as to subject matter and organization.

The Home Economics Section meetings were exceptionally well attended. Grace Frysinger talked on "The Home A Factor in Rural Growth," and Dr. Minna Denton who was visiting the University appeared on the conference program. Mrs. Blanche Bowers, the home demonstration agent from Franklin County, Ohio, and Jessie Hoover, who is in government dairy work presented pertinent phases of the relation of home economics to community work. Members of the resident home economics teaching staff talked on different aspects of household management, foods, house furnishings, and experimental work.

Omicron Nu held its annual dinner during this meeting, and welcomed the new chapter at Indiana State University. The Purdue chapter was represented by faculty and student members.

IOWA

The Iowa State Home Economics Association held its annual meeting November 2–3 at Des Moines. The constitution was revised, and affiliation with the national association was effected. The following officers were elected for the coming year: President, Neale S. Knowles; Vice President, Helene Pope; National Councilor, Florence E. Busse.

Methods of teaching home economics were stressed by two speakers: Elizabeth Todd, of the University of Illinois, who spoke on Teaching Senior Home Economics by the Five Step Plan, and Cora B. Miller, of Iowa State College, who led the discussion on Methods of Grading Home Economics Students.

Dr. Amy Daniels, of the Child Welfare Research Station, University of Iowa, told what could and should be the part of the teacher of home economics in the nutrition program of the schools. Margaret Baker Nutrition Specialist of Iowa State College, spoke on lunchroom problems in the public schools. The Place and Function of Art in Home Economics was the topic of an address by Frank Alvah Parsons, President of the New York School of Fine and Applied Arts.

Iowa State College. The college is offering a series of short courses for homemakers interested in studying scientific methods of housekeeping, and for young women who expect to establish homes, but have not had home economics training. During the fall one unit was Marketing and Preservation of Foods, and the other Principles of Meal Planning and Serving. The courses for the winter quarter are Children's Clothing and Costume Design. For the spring the courses will be House Planning and Furnishing and Household Management.

KANSAS

Home Economics Round Tables. Kansas holds a series of round tables for teachers each year, so that every teacher can attend one without going a great distance. The following programs were presented October 19–21, 1922.

Pittsburg: Chairman, Zoe Wolcott, State Manual Training Normal School, Pittsburg. Addresses—Home Economics in the Junior High School, Martha Trinder, Parsons; Art in Its Relation to Home Economics, Evelyn Metzger, State Manual Training Normal. Discussion—Led by Agnes Saunders, State Manual Training Normal.

Topeka: Chairman, Ida M. Mitchell, Supervisor of Domestic Art, Kansas City. Addresses—Accomplishments of the Eighth Grade Girls in Home Economics, Nina B. Crigler, State Home Demonstration Leader; Domestic Art in Rural High Schools and in Third Class Cities, Margaret Barrows, Atchison Junior High School; Domestic Art in High Schools of First and Second Class Cities and County High Schools, Ora McMillan, Topeka High School; Domestic Science in Rural High Schools and in Third Class Cities, Hazel Thompson, Altamont; Domestic Science in High Schools of First and Second Class Cities and County High Schools, Effie Adams, Kansas City.

Hutchinson: Chairman, Florence Harrison, Arkansas City. Addresses—Worth While Problems and New Ideas in Food, Mary Van Arsdale, El Dorado; Linking the Home Economics Class Room Teaching and the Home, Iva Fern Fisher, Wellington; Adaptation of the Budget of High School Home Economics Course, Anna Burdette, Caldwell; Some High Lights of the Summer Conference of the American Home Economics Association at Corvallis, Ruth Stevenson, Hutchinson.

Hays: Chairman, Florence Palmer, Salina. Addresses—Appreciation, the Aim of the High School Girl, Ruth Stevenson, Department of Home Economics, High School, Hutchinson; The Hot Lunch as a Project of Educational Value in the Rural School, Martha S. Pittman, Kansas State Agricultural College.

Kansas State Agricultural College. In the absence of Professor Kneeland, Amy Jane Leazenby, associate professor, is conducting the administration of the department.

New members of the home economics staff this year are: Mina Bates, A. M., University of Georgia, Instructor in Food Economics and Nutrition; Helen A Bishop, A. M., Columbia, Assistant Professor of Household Economics; Martha Kramer, Ph.D. Columbia, Associate Professor of Food Economics and Nutrition; Dorothy Ann Voorhis, New York School of Fine Arts, Instructor in Applied Art.

MISSOURI

Vocational Home Economics Conference. The Missouri teachers of vocational home economics met in Columbia, November 2–4, for the annual conference. Forty-five teachers representing the forty-three vocational schools, were present. Mrs. Anna L. Burdick of the Federal Board for Vocational Education, was the only speaker from outside the state. Most of the time was spent in general discussion of the problems which have arisen in the vocational schools.

Contests in selection and preparation of food, selection and construction of clothing, and home nursing were held among the students in vocational home economics. Trophies were offered by the former Governor, the Federation of Womens Clubs, The Parent Teachers Association, and the State Nurses Association. These trophies are held by each school for a year. If any school wins the trophy for three years it then becomes the property of that school. This year the Lebanon High School took the sweepstake trophy, the silver cup, offered three years ago by Governor Gardner. St. Charles stood first in the clothing contest.

NEW ENGLAND

Maria Howard Hilliard Scholarship Fund. A fund for scholarships at Simmons College, in the Department of Household Economics, is being raised as a memorial to Mrs. Hilliard and her work in the college. The fund is in charge of Mrs. Mary Stocking Whitcomb, 4 Auburn Court, Brookline, Mass. To many of the friends and former students of Mrs. Hilliard this comes as a welcome opportunity to perpetuate her spirit of helpfulness and her interest in women in home economics work.

NEBRASKA

Health Campaign. The Well Child, and How to Keep Him So was the theme of Dr. Caroline B. Hedger during the health and nutrition campaign conducted by the Extension Service during the month of October. Dr. Hedger gave 40 demonstration lectures to 9000 people. Fifteen counties sponsored the work with the coöperation of farm bureaus, Red Cross chapters, county superintendents, and women's clubs. The parents' score card was used in teaching the standards of health for the growing child. Four hundred homes will continue the use of the score card. Dr. Hedger also spoke to the State Federation of Women's Clubs, the State Nurse's Association, the Kearney Normal School, Convocation for the Girls of the State University, and the Annual Conference of Extension workers.

Follow-up work in health and nutrition will include the mental picture of the well child through the use of the parent's score card, continued weighing and measuring, posture through correct nutrition, nutrition groups, hot lunch work, Keep-well Clubs, prenatal and child care lectures.

Vocational Home Economics. Fifty-six high schools are receiving reimbursement for vocational home economics courses this year. All but eight of the schools are offering more than a one year course. A few have a three year course with the first year of work offered every year and the second and third offered every other year. At least one home project a year is required of each vocational girl. In addition, the students are taught that the successful homemaker cannot ignore community welfare. In the Kearney High School, under the direction of Margaret L. Killian, the second year girls have a make-over problem to which they give six weeks time. They make over garments for some of the needy

children in the ward building. A request for garments which can be made over into childrens' clothes is carried in the school paper and garments of all description are received. The make-over problem develops lessons on cleaning wool and silk, the removal of spots, and dyeing. The garments made include night dresses, underwear, dresses, and coats.

At the end of the period an exhibit is held for the mothers of the girls, in the home economics department of the Woman's Club.

A vocational conference for these schools is held in 6 centers in the state at convenient points. School and county superintendents and others interested in vocational work are invited to be present and take part in the conference. Under the direction of Margaret Fedde, president of the Nebraska Home Economics Association, each of the 6 districts had a conference in home economics during the meetings of the District Educational Associations, October 14–16. At each meeting, time was given for a round table discussion of problems common to the district. Topics presented and discussed were the artistic value of home economics, the relation of the home economics department to the school health program, achievements in home economics and the importance of home economics in the training of girls. Sixty-six joined the state and national association and a committee has been appointed to put on a membership drive immediately.

NEW MEXICO

County Health Nurse Cooperates with Schools. The county health nurse of Eddy County, is coöperating with the vocational home economics departments at Carlsbad and Artesia, by giving a course combining sanitation, hygiene, and home nursing. The class meets for one ninety-minute period each week. The text is Personal Hygiene and Care of the Sick, prepared by the A. R. C.

The work thus far has consisted of the study of the nature of disease, immunity, sanitary conditions in the home, and personal hygiene, together with demonstrations and practice work.

The nurse gives the pupils of the public schools of Carlsbad periodical physical examinations. Children who are ill are not allowed in school. Thus two cases of scarlet fever were caught in their incipient stages and further spread of the disease avoided.

Evening Classes in Home Economics. Mrs. M. M. Leibold, who conducted evening classes in home economics last year is continuing her work with the Spanish-American women, at Santa Cruz. She has two classes: the advanced class consists of older women who had the work last year; the beginning class is made up of girls and younger women. Each class has just completed a five weeks' unit course in canning and food preservation. The classes are now uniting for a home nursing course. This work is especially pertinent because of the epidemic of measles in the community.

NEW YORK

The New York Nutrition Council held its opening meeting for the year October 26, with Nutrition At Home and Abroad as the subject for discussion. Clyde Schumann of the Nutrition Service of the American Red Cross spoke on the Forward March of Nutrition in the United States, telling of the work carried on by different organizations, the place of the nutrition worker in the community, and the needs to be met. Emma Winslow told of nutrition problems in Europe, especially in England.

The Committee on Current Events and Literature distributed a bibliography of recent articles on nutrition. A report was given of the meeting of the American Dietetic Association at Washington, by Mary De Garmo Bryan, the retiring president.

The membership of the council is growing steadily and the meeting was well attended.

Teachers College Discontinues Freshman and Sophomore Years. At a meeting of the Trustees of Teachers College, Columbia University, held October 19, 1922, it was decided to increase by two years the requirements for admission to its School of Practical Arts by discontinuing the freshman and sophomore years of instruction. By the

new arrangement prospective students must now obtain their freshman and sophomore training in some other college or technical school, after which they may enter the School of Practical Arts as juniors.

This will limit the instruction to juniors, seniors, and post-graduate students. It will be two years before the new requirements are completely in effect. The present freshman class will be carried through so that a sophomore year will be offered for 1923–24. New students who have had a year's college work elsewhere may join the sophomore class next fall. By the fall of 1924 the new regulations will be fully effective.

This action was made necessary by the astonishingly rapid growth in the enrollment of the School of Practical Arts during the past few years, which for some time has overtaxed all the facilities of the institution. For a number of years there have been increasing demands for advanced instruction. The rapid growth of departments of practical arts in colleges and universities throughout the country has so increased the number of opportunities for the first two years of training in this field that the Trustees feel that it is now far more important that Teachers College should conserve its resources for instruction in advance of that offered elsewhere.

Teacher Training Conference. The third of a series of meetings of representatives of New York institutions training teachers of home economics was held at Teachers College, November third and fourth, under the chairmanship of Emma Conley of the State Department of Education. These meetings have been for the purpose of frankly discussing courses and methods, with a view to the strengthening of desirable features, the possible elimination of non-essentials, and the addition of new material needed to help the girl who is preparing to teach.

Dr. Wm. H. Kilpatrick, of Teachers College discussed the topic, How People Learn, making special applications to home economics teaching. Dr. F. G. Bonser analyzed the purpose of the curriculum for training home economics teachers. Miss Binzell, Miss Gillett and Miss Caudell told of their methods of checking the results of teacher training courses in visits to their students in the teaching field. Miss Conley told of points needing emphasis in training teachers for New York state. The last meeting was given over to an informal discussion of methods used in teaching technical subjects, and the need for making them function.

The next meeting will be held at Mechanics Institute, in March. At that time an effort will be made to work out some practical method of measuring results of the teaching in the technical courses.

UTAH

The Utah Home Economics Association held its annual convention in Salt Lake City, October 20, 1922. Dr. Payson Smith, State Commissioner of Education of Massachusetts was the chief speaker of the morning session. Dr. Smith emphasized the importance of home economics in the school curriculum.

The Utah Councilor gave a report of the American Home Economics Convention, held in Corvallis and read the program of work adopted at this meeting. Following a luncheon held at the University Club, ten minute talks in the form of travelogues were given by Utah teachers who have visited different parts of the country during the past summer. Home economics happenings were reported from New York, Chicago, Minneapolis, Berkeley, and Corvallis.

Johanna Moen was elected president of the Association, and Enid Ruff, secretary and treasurer.

Though the Utah Association was affiliated with the American Association early last year, with a representative membership, the aim is to increase materially both the number of members and the number of Journal subscriptions in the state. Plans are now under way to carry on this piece of work. The spirit of coöperation displayed by the Utah teachers at their recent convention points to a full realization of all their plans for a strong professional organization which will be a credit to Utah and an asset to the National Association.

Demonstration Lectures. Dr. Caroline Hedger spent four weeks in Utah as special demonstration lecturer in connection with the State Extension Service, coöperating with the county and community organizations, doing extension project work in the home, health project. She visited thirty-eight communities and gave fifty-three lecture demonstrations. Dr. Hedger focused her work on family health standards, emphasizing constructive health ideas. The place and effect of foods, clothing, shelter, rest, and recreation in the scheme of health, and the necessity for "team-work" by parents in establishing health standards for the family and for the community were brought out clearly and effectively.

The work of Dr. Hedger was planned to supplement the Extension Service home health project already organized in the state.

The Second Annual Famers' and Housekeepers' Encampment was held for one week during mid-summer at the State Agricultural College, Logan, with two thousand in attendance. The attendance representing nearly every county in Utah and several near by states. The guests were housed on the campus in tents provided by the College and by the business houses and civic clubs of Logan City. Electric lights, water and other conveniences necessary for camping comforts were provided. A bureau of information, guides, nursery for children, doctors' and nurses' services, swimming pools, shower baths, cafeteria, milk bar, free buttermilk, department exhibits, farm tours, "movies," and "play hours" were available to guests of the institution.

Subject matter instruction and demonstrations in various farm and home projects were given daily to interested groups of men and women; persons of national reputation spoke at the general assemblies.

The keynote of the Encampment was sounded by President Elmer G. Peterson in his address of welcome. President Peterson declared that we are now upon the brink of one of the most significant developments western agriculture has ever faced. The farmer must standardize his farm products and develop coöperative facilities for marketing, in order to assure acceptable standards of living for the rural home, for upon contented and happy homes depends the permanency and stability of agriculture. The Encampment offers the people of the state a great clearing house for the exchange of ideas in constructively facing the problems of the farm and of the home.

Other speakers were: Dr. Henry J. Waters, former president of Kansas State Agricultural College and present Editor of Kansas City Star; Dr. Charles F. Curtis, Dean and Director of Division of Agriculture, Iowa State College of Agriculture; Bess M. Rowe, Field Editor of The Farmer's Wife, St. Paul, Minn.

Many extraordinary things might be said about the Encampment. In the first place it was held on the coolest, greenest campus in the state during the hottest weather; it was one of the greatest assemblies of people with rural interests Utah has ever held; it offered a most profitable vacation-outing for the farmer and his family; it brought together possibilities for hundreds of new friendships; it gave opportunities for contact with some of the best minds of the nation; it bids fair to become as famous in the West as the Chautauqua assemblies in New York State.

WASHINGTON

Seattle Public Schools. New teachers added to the staff of the Seattle Public Schools are: Dorothy Hinman, Washington State College; Helen Bruce, University of Washington; Henrietta Burgess, University of Washington.

The new Roosevelt High School was dedicated on Roosevelt's birthday and contains an excellent laboratory and lunch room for the Home Economics Department.

Americanization classes are taught by home economics teachers who teach American food habits as well as cooking and English. Nineteen nationalities are represented in one school building. Visiting housekeeping is practiced. A Japanese school has an Americanized lunch room where the children learn to eat American food.

In connection with National Apple Week, Seattle schools coöperated with the Chamber of Commerce in advertising the Washington apple. The Home Economics Department was presented with a carload of apples to be made into apple pies. From 15000 to 20000 pies were made. A sufficient number were sold to cover the necessary expenses. Pies were given away to the Chamber of Commerce, the School Board, and the daily papers—enough for every one from the editor to the printer's devil to have a pie; 5000 girls baked pies simultaneously for two whole days. They were allowed to take home all the pies they baked the first day. It was a novel experience, demonstrating to the School Board that a huge community enterprise might be undertaken without additional expense. As a by-product of the apple campaign, 5000 expert pie makers were developed.

The Women's University Club of Seattle has recently moved into a new clubhouse with accomodations for forty-eight residents. Mildred Holtz, a graduate of the University of Nebraska, with training in institutional management at the University of Washington has been appointed house manager. A study class is to be conducted by the home economics staff of the University at the Womens' University Club. Home management problems including many phases of home economics will be presented.

WEST VIRGINIA

The West Virginia Home Economics Association met in Charleston November 17, 1922 in joint session with the State Education Association.

Edna White of the Merrill-Palmer School, Detroit, Michigan, spoke on Child Welfare; Rachel Colwell of West Virginia University gave some impressions of Corvallis; Mrs. Gertrude Gates Mudge, lately of the New York County Red Cross, now with the Council of Social Agencies, Huntington, W. Va., discussed the Nutrition Class. The entire program was instructive and inspiring. It is hoped that next year we may have an active Homemakers Section with the Home Economics Departments of the State Women's Clubs and the Farm Women's Federation taking part.

Officers elected at the business meeting are: President, Rachel Myers, Concord Normal; Vice President, Martha Ross, Supervisor, Wheeling; Secretary, Katherine Kearney, Supervisor, Charleston; Treasurer, Virginia Gaskill, Fairmont Normal; Councilor, Isabella Wilson, Marshall College; Alternate, Rachel Colwell, W. Va. University.

NOTES

Elizabeth Amery, formerly Assistant Professor in Home Economics, Univ. of Washington, has been appointed Supervisor of Home Economics under the Federal Board of Vocational Education for the State of Delaware.

Addie Jeanette Bliss, formerly in extension service at Pennsylvania State College has been appointed Assistant Professor of Home Economics, University of Washington, to fill the vacancy left by Elizabeth Amery.

Dr. L. Jean Bogert resigned her position as Professor of Food Economics and Nutrition, Kansas State Agriculture College, to accept an appointment for research work, Henry Ford Hospital, Detroit.

Florence Clarke, graduate student at the University of Washington has been appointed Instructor in Costume Design at Kansas Agriculture College.

Mary Aleen Davis, the class of 1922, University of Washington, received the Bon Marche Industrial Fellowship in textile testing for 1922–23.

Louise Everhardy, Instructor in Applied Art, Kansas State Agr. College, is studying at Columbia.

Announcement is made of the marriage of **Bertha Holden** of Pittsford, Vt. to John J. Round. Miss Holden studied at Teachers College and was an assistant to the director of the dormitory. Later she did extension work in Iowa. Mr. and Mrs. Round will live in Wakefield, Mass.

Katherine Hudson, Instructor in Food Economics and Nutrition, Kansas State Agricultural College, is studying at Columbia.

Hildegarde Kneeland, Head of the Department of Household Economics, Kansas State Agricultural College, is absent on leave to complete her work for the doctor's degree at Columbia.

Martha Koehne, Assistant Professor of Home Economics, who was on leave of absence for the autumn quarter, has returned to the University of Washington. Miss Koehne was doing work at the medical college of Ohio State University.

Inez La Bossier, a graduate of the University of Washington, has been appointed State Clothing Specialist for Montana.

Mrs. Lulu R. Lancaster, Instructor in Practice House and Home Management, has resigned her position in the home economics department of the University of Arizona to study for her M.A. degree this year.

Marion L. Tucker has succeeded Mrs. Ruth Stevens Reed as Clothing Specialist with the Extension Service of the Massachusetts Agricultural College.

Mrs. Jessamine Chapman Williams, has resigned her position as Professor of Foods and Nutrition, University of Arizona.

NATIONAL

The annual meeting of the **House of Delegates of the Women's Foundation for Health** was held November 21 and 22 at the Foundation Headquarters, in New York City. Health Education, Individual Health Responsibility, Health Examinations and the collection of statistics relating to women's health were discussed as the significant features of the coming five year program.

The officers elected for 1922–23 are: President, Dr. Martha Tracy, Dean of the Women's Medical College, Philadelphia; Vice-President, Mary E. Woolley, President of Mt. Holyoke College, Secretary, Mrs. D. W. Cooper, President of the New Jersey Mothers' Congress and Parent Teachers Associations.

On December 15 the Foundation Headquarters were moved to Penn Terminal Building, 370 Seventh Avenue, and will occupy offices on the same floor with the National Health Council, National Child Welfare Association, and other organizations.

National Organizations Amalgamate. The two principal national organizations engaged in promoting the health of children of this country have voted to amalgamate under the title, American Child Health Association. Great as is the importance of aligning the forces represented in the American Child Hygiene Association and the Child Health Organization of America, and vital as is the cause in which they are uniting, there is still another reason that this event seems one of the most significant that has happened in the history of health work. It is an indication of a new tendency in this field.

Amalgamation in the interests of economy and efficiency in the business world no longer excites comment. In promoting the health of the people of the country, especially the mothers and children, a service is rendered whose ideals transcend merely that of health for its own sake. The strength, usefulness, and whole outlook of the citizens of the nation are involved, not to mention life or death for hundreds of thousands of our mothers and babies. How great, therefore, would seem to be the urgency of amalgamation in this field of service in the interests of effectiveness and economy. The raising of funds for health work alone is no light burden.

A genuine pooling of service seems to be assured, with the interests of the child first, and organization and personnel subordinating themselves to and serving that purpose at all times. This means greatly increased opportunities for service through concentration of forces, economy of energy, and the joining of wisdom in the making of plans. Also it makes much more possible the filling of those gaps in the child health program which need to be filled, such as the coördination of research work and the greatly increased stimulation of training of physicians, nurses, nutrition workers, social workers, teachers, and others in opportunities and sound methods for serving the children.

Children's Recreation Service. The inauguration of special service in the field of recreation is announced by the Children's Bureau, of the U. S. Department of Labor, with the appointment to its permanent staff of Martha Travilla Speakman, recreation expert. Miss Speakman was in charge of the organization of play in the schools of Porto Rico, during the "Children's Year" campaign recently concluded by the Children's Bureau.

The United States Civil Service Commission announces open competitive examinations for matron in the Indian Service, January 24 and March 7, 1923.

The National Kindergarten Association, 8 West 40th Street, New York, has received assurances from Alabama, Connecticut, Florida, Massachusetts, Michigan, Missouri, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Tennessee, and Washington that plans are being made to secure, this winter, the enactment of laws providing for the establishment of kindergartens upon petition of parents.

Eight states now have such laws. California is the only state having more than thirty per cent of its children in kindergartens, and four million children in other states are being deprived of early training in right habits of thought and action.

Additional information and literature will be furnished upon request.

The Education of the County Community. The fifth annual conference of the American Country Life Association chose for the key note of its annual meeting the education of the country community. The meeting was held in New York City, November 9–11, 1922.

Of special interest to home economics women were the talks of Dr. C. B. Smith on Principles and Achievements of Adult Education Under the Smith Lever Act, and of Rosamond Root on The Public School as a Center for Rural Community Education. In the absence of Florence Ward who was unable to attend the meeting, extension work and its future needs and possibilities were discussed by others.

Camp Roosevelt. The success of Camp Roosevelt's fourth season during the summer of 1922 will do much to start next summer's camp off with flying colors. Major F. L. Beals, the founder and commanding officer, is busily engaged in planning new features for the better training and advanced education of the seven hundred or more boys entrusted to his care during the vacation period.

The camp is operated as an auxiliary of the Chicago public school system, and inquiries addressed to Major Beals, in care of Chicago Board of Education, 460 S. State St., will receive prompt attention.

Conference on Qualifications for Homemaking. Preceding the meetings of the Land-Grant College Association, ten or a dozen home economics women met with Dean Charters, of the Carnegie Institute of Pittsburg, to discuss an outline of the qualifications required for the successful homemaker. Dean Charters had become interested in the matter in connection with the general problem of reorganizing college education for women as it had arisen in work on the curriculum at Stephens College, Missouri. Through the coöperation of Miss Richardson, three or four hundred college graduates, now engaged in homemaking, had been persuaded to keep diaries of their activities and problems for one week, and had turned them in to Dean Charters. These diaries had been analyzed to find the principal difficulties of the women, and the qualifications needed to surmount them. In addition, twenty-five or thirty families of comparable intelligence and social conditions had been analyzed for a similar purpose by Dean Charters and his staff. As a result of this study, forty seven qualifications had been listed, together with their application to the various activities and problems of homemaking.

Dean Charters asked those present to go over the list and then to suggest possible omissions and give their opinions as to the general value of the undertaking. They urged him to continue the work and joined in an interested discussion of the desirable

qualifications or ideals, and how these can be developed in students.

Dean Charters feels that the matter is still in too formative a stage to be given out in detail, but home economics workers will look forward to the time when he is ready to report the results of his study.

An American Dietitian in Turkey. Bertha K. Whipple, for two years a member of the home economics faculty of the University of Missouri, is now the dietitian at the Constantinople Women's Hospital. She writes of the beginning of her work as follows:

"I am in the nurses' home annex, which is a part of a small Turkish house just outside the hospital grounds. It is on a little side street or alley, but since it goes off at an angle I can get a view of the main street, where there is much going on all the time. There are nine nurses in the annex, four Armenians, four Greeks and one Turkish girl.

"The new year for the training school is just beginning. I met my class of preliminaries today for the first time. They seem to be a very interesting group of girls, fourteen so far. The Bulgarian girls are especially attractive. Most of them seem to understand my English. I shall have a class of juniors later on. I have taken over the work of the diet kitchen. The student nurses are in charge, and I just have to oversee and direct them. Really the diet kitchen is at present not much more than a serving room for our forty-odd patients. We have no private patients just now, so the work is fairly simple. I hope soon to get into the work sufficiently to be able to prescribe, or rather advise, diets etc. My next duty to take over will be to plan the meals for every one.

"Today I met the Norton's in town and had tea at the Sailors' Club.

I certainly have the most interesting place to live in. One might be in a college community almost anywhere, whereas there never could be another place like the American Hospital. The longer I stay the more I admire the work we are doing and what has been made out of the old rattle-trap tumbled down house.

Public Health Exhibit. Pictures of the exhibit shown by the Home Economics Association of Greater New York for the American Home Economics Association in connection with the Public Health Exhibit in Brooklyn may be obtained from the JOURNAL office by those interested in knowing just what was included in the exhibit.

Executive Secretary. Miss Sweeny's itinerary for the month of December was as follows:

December 1 and 2, Detroit: Mid-year meeting of the American Home Economics Association

December 3, Chicago: Addressed the Phi Upsilon Omicron at their annual meeting

December 4, Washington: Met with the Women's Joint Congressional Committee, and attended a meeting of the Sub-committee on the Fess Bill.

December 5 to 10, Washington: Attended committee meetings of the Joint Congressional Committee, and Legislative Committee.

December 11 to 15: En route to California.

December 15, Sacramento: Addressed Bay Section Home Economics Association.

December 16, Fresno: Addressed Central Home Economics Association.

December 17 to 22, Los Angeles: Addressed Southern California Home Economics Association.